

Date: April 25, 2007

Item No.

1

## MILPITAS PLANNING COMMISSION AGENDA REPORT

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Category: Public Hearing

Report Prepared by: Kristine Lowe

Public Hearing: Yes X No: \_\_\_\_\_

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**TITLE:** "S"ZONE APPROVAL NO. SZ 2005-2

**Proposal:** A request to construct a 5,706 (approximate) square foot, single-family Hillside residence with grading and landscaping.

**Location:** 898 Calaveras Ridge Drive-Lot 4

**APN:** 029-06-038

**RECOMMENDATION:** Approve with conditions to City Council

**Owner/Applicant:** Haresh Panchal, 134 Sweetberry Court, San Jose, CA 95136.

**Previous Action(s):** Tentative Map, Planned Unit Development (PUD 23.5), EIA 239.

**Environmental Info:** The proposed is Categorically exempt pursuant to Section 15303 (Class 3 Section (a)) of the California Environmental Quality Act (CEQA).

**General Plan Designation:** Hillside – Very Low Density

**Present Zoning:** Single Family Residential-Hillside (R1-H)

**Existing Land Use:** Vacant

**Agenda Sent To:** Applicant/property owner as noted above

Alex Lesetar, 441 N. Central Avenue, Campbell, CA 95008

**Attachments:** Attachment A - Project Plans, Elevations, Landscaping  
Attachment B – Excerpts from Soil Engineering and Geologic and Seismic Hazards Evaluation Reports for Calaveras Ridge Estates dated 1981-1982  
Attachment C – Preliminary Geologic Assessment dated June 8, 2005  
Attachment D – Fault Investigation for Proposed Residential Development at 898 Calaveras Ridge Drive dated February 3, 2006  
Attachment E - Geotechnical Peer Review from Geotechnical Engineering Reporting dated March 24, 2006

PJ #: 3187

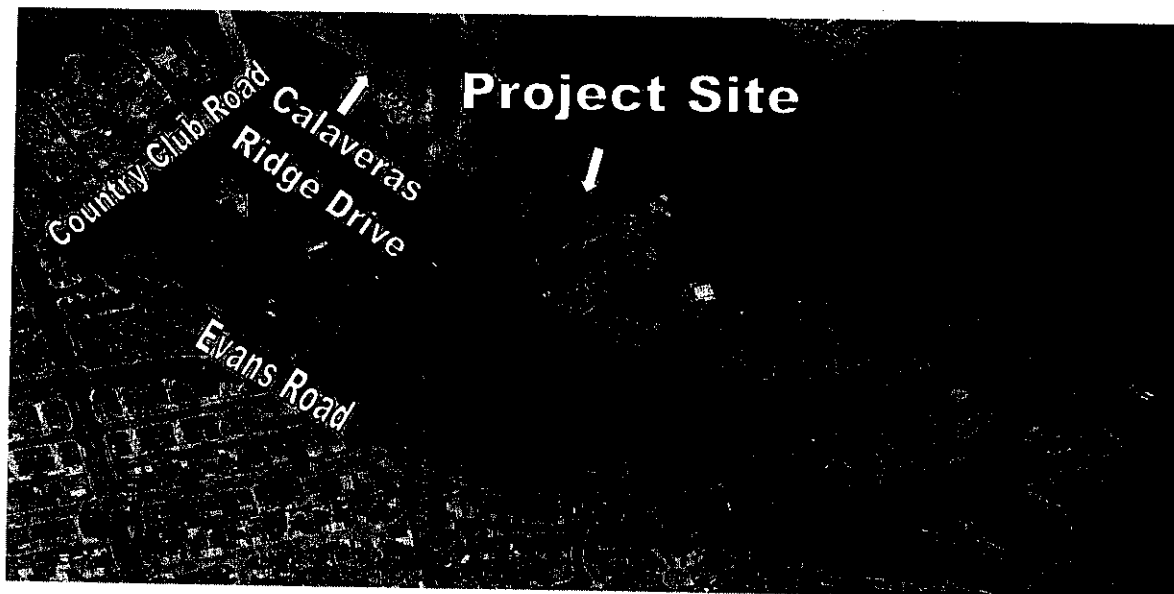
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## BACKGROUND

On August 21, 1979, the City Council approved an Environmental Impact Assessment (No. 239) for a hillside subdivision, located on 35 acres east of Evans Road and south of Country Club Drive (Tract 7328). On September 1, 1981, the City Council approved a Tentative Map and Planned Unit Development (No. 23.5) for the 17-lot Calaveras Ridge Estates subdivision. Subsequently, on January 5, 1988, the City Council approved an amended Tentative Map for the removal of the previously approved building footprints.

### Site Description

The project site is a 55,322 square foot vacant parcel (Lot 4) located at the northernmost portion of the Calaveras Country Estates subdivision (PUD 23.5) within the Single-Family Hillside zoning district (R1-H). The rectangular shaped lot is located on the north side of Calaveras Ridge Drive, and is bounded by a one-story, single-family hillside residence to the south, undeveloped lots to the north and west of the project site, and common open space to the east. The site falls within the Alquist-Priolo Special Study Zone for seismic hazards.



*Aerial View of 898 Calaveras Ridge Drive*

## THE APPLICATION

The application is submitted pursuant to Title XI, Section 45 (Hillside Combining District) of the Milpitas Zoning Ordinance, in that the applicant is requesting approval to construct a new single-family residence with an attached garage, landscaping and grading in quantities greater than 1,500 cubic yards, located in the Hillside zoning district.

## **Project Description**

The applicant is requesting approval to construct a new 5,706 square foot, single-family residence on an undeveloped lot within the Calaveras Country Estates Planned Unit Development (PUD 23.5). The new single-family residence is proposed to be 17-feet in height and consist of a 3,424 square foot ground floor area with a 1,502 square foot basement, an attached 780 square foot 3-car garage. The proposed floor plan includes five (5) bedrooms, six (6) bathrooms, living areas, library, 3-car garage and rear outdoor courtyard. Exterior lighting includes the use of building-mounted low-glare lighting fixtures.

Primary vehicular access to the site would be provided by a circular shaped driveway located at the front of the residence that branches out toward the south side of the lot to the garage. Proposed driveway materials consist of turf block located on the upper circular portion of the driveway (adjacent to the front entrance of the residence) and Eco-stone, which is a pervious surface material. Site improvements include landscaping and grading in excess of 1,500 cubic yards.

An 8' wrought iron fence and 9' high wrought iron gate fencing along the front property line is proposed. No accessory structures/buildings are proposed with this application.

## **Site Layout & Building Architecture**

### *Site Layout*

The new single-family residence footprint is rectangular in shape and located on the western portion of the parcel, approximately 590 feet away from the perceived Crestline. The building footprint will be set back 40' from the side property lines and 138' from the rear property line. Because the street bulbs out along a 70-foot portion of the front property line, the building footprint is set back between 86' (on the bulb) to 117'.

### *Architecture*

The proposed single-family residence architecture is characterized as Mediterranean Contemporary style and is compatible with the surrounding residential architectural styles. Building elements consists of stucco exterior with masonry veneers, recessed windows, a rounded window for the library located at the rear of the residence, and an elevated entry foyer. The exterior finish schedule consists of an earth tone color palate, including light tan (Light Spice) for the stucco exterior, a darker tan color for the trim and forest green decorative tiles along the front elevation. The proposed structure maintains a low roof pitch consisting of a terra cotta (Villa Casa Grande) color concrete tile roof.

## **Landscaping**

According to the Landscape Plan, the applicant is proposing ground covers (including Lily-of-the-Nile, Rosemary, Aaron's Beard), shrubs (including Rosemary, Japanese Boxwood, Heavenly Bamboo), vines (Blood Red Trumpet Vine) and trees (including Valley Oak, California Buckeye, Crape Myrtle) for landscaping of the project site. Staff reviewed all the proposed plantings and determined the plants are in conformance with the Hillside Landscaping Policy (Resolution 6066). The intent of the Hillside Ordinance, in regards to landscaping, is that coverage be selected and designed to be compatible with surrounding natural vegetation. The proposed plant species were selected from Resolution 6066 to minimize the amount of water required for maintenance and the use of species identified as compatible with natural vegetation found on the project site.

Therefore, the proposed landscaping will be compatible with natural vegetation found on the project site. No trees exist on the project site.

#### *Fencing*

The application includes an 8' wrought iron fence and a 9' high wrought iron gate along the front property line. Fencing requires approval from the Planning Commission pursuant to the Hillside Fencing Requirements (Section 54.11) if the height exceeds fifty-four (54) inches. No side or rear perimeter fencing is proposed at this time. Because the project site is part of the Calaveras Ridge Homeowners Association, **staff recommends** a condition that a letter by the Homeowner's Association approving the proposed fence shall be included as part of the building permit submittal for the fence. (*Special Condition 5*)

#### **Grading**

According to the plans, approximately 2,393 cubic yards are proposed to be cut but will be used in landscaping or export. Whenever there is grading in excess of 1,500 cubic yards, the Planning Commission must review the proposed Grading Plan and recommend approval or denial to the City Council pursuant to the Hillside Grading Requirements (Section 45.18). The purpose and intent of this requirement is to regulate the alteration of land in hill areas to substantially maintain essential natural characteristics, such as land form, vegetation, and scenic qualities. As shown on Table 1 below, the proposed project conforms with the Hillside Grading Requirements.

**Table 1: Grading Design Standards and Compliance**

Grading Requirement	Proposed	Complies?
Stepped building foundations are required to minimize grading on building pads.	Building foundation is stepped to minimize grading.	Yes
Landscape compatibility with natural vegetation.	Proposed landscaping is in compliance with Resolution 6066-Hillside Landscaping Water Conservation Policy.	Yes
Cut-fill slopes in concert with existing natural contours and scale.	Cut-fill slopes aligned with natural contours.	Yes
Grading of any areas of a site with natural slope greater than 40% is prohibited.	Overall parcel slope: 15.5%.	Yes

#### **Impervious Coverage**

According to the Hillside Ordinance (Section 45.17-3), the maximum impervious surface coverage allowed on parcels less than 3 acres is 10% of the of the total lot area or 8,000 square feet, whichever is greater. As shown in Table 2 below, the total proposed impervious surface coverage is 7,855.25 square feet (14%) and includes the building footprint, non-permeable landscaped areas, lightwells and covered porches.

The total driveway consists of Eco-Stone permeable pavers and turf block. Section 45.17-2 of the Hillside Ordinance defines impervious surfaces as "...surfaces that will not allow or greatly reduce the penetration of water into the ground..." such as concrete, asphalt, bricks, swimming pools, "turf stones", and plastic sheeting. The adopted Stormwater C.3 Guidebook includes pervious concrete and unit pavers as acceptable permeable pavement materials. Therefore the driveway is not included in the table below since pervious surfaces will be used.

**Table 2: Proposed Impervious Surfaces**

<b>Impervious Surfaces</b>	
<b>Lot Area</b>	<b>55,322 sq. ft. (1.27 acres)</b>
<i>Building footprint (including garage)</i>	<i>4,204.25 sq. ft.</i>
<i>Non-permeable landscaped areas</i>	<i>3,010 sq. ft.</i>
<i>Light wells</i>	<i>342 sq. ft.</i>
<i>Covered Porches</i>	<i>299 sq. ft.</i>
<b>Total Impervious Surfaces</b>	<b>7,855.25 sq. ft.</b>
<b>Maximum Impervious Surface Allowed</b>	<b>8,000 sq. ft.</b>
<b>Percentage of lot impervious coverage</b>	<b>14 %</b>

## Geologic

According to the General Plan Seismic and Geotechnical Map (Figure 5-2) and USGS Special Studies Zone Map, the project site is located within the Alquist-Priolo Special Study Zone. In addition, according to the Geotechnical Hazards map (Figure 5-1), the project site is located in areas with known expansive and unstable soils. Therefore, Geologic and Soils Studies are required to identify any significant seismic fault and/or slope instability hazards on the site that would threaten the proposed residence and to provide mitigation measures.

When the Calaveras Ridge Estates Planned Unit Development (PUD 23.5) Tentative Map was reviewed, a Geologic and Seismic Hazards Evaluation Report (October 1982) was conducted for the related Environmental Impact Assessment (EIA No. 239). At that time, the Tentative Map included building envelopes on each proposed parcel that were subsequently removed through an amendment to the Tentative Map. The Geologic Report identified areas of Calaveras Country Estates subdivision that have significant geologic hazards ("Geological Hazard Zones") such as traces of the Hayward fault, the Crosley Fault west of the site, and unstable slopes, and made the recommendation that residential structures not be within the Geological Hazards Zones.

The applicant is requesting to locate the proposed structure within the building envelope as determined by the Fault Investigation report<sup>1</sup> which evaluated and provided recommendations to minimize potential hazards in the event of ground failures, such as ground shaking, land sliding, ground subsidence, ground lurching, shallow ground rupture, and liquefaction. Based upon the trenching study, no evidence for faulting was observed. The investigation recommended that any residential structures shall be set back 50 feet from the northeasternmost fault trace (See

<sup>1</sup> Fault Investigation for Proposed Residential Development, John Coyle and Associates, February 3, 2006.

Attachment D). Staff concludes that the proposed residence is constructed within the recommended building envelope, however, **staff recommends** that any addition to the residence shall comply with the findings and the recommendations of the Fault Investigation Report dated February 3, 2006. (*Special Condition #2*)

The City's building permit process requires a site-specific soils report and compliance with seismic safety construction standards as part of the City's building permit review and construction inspection process, therefore the impacts anticipated regarding seismic ground shaking, expansive soils, or liquefaction would be considered minimal. In addition, **staff recommends** as a condition that the project plans incorporate the recommendations of the Fault Investigation report dated February 3, 2006 and that a detailed site specific soil investigation be performed to address the seismic slope stability issues as well as provide recommendation for foundation design and other geotechnically related parameters. (*Special Condition #3*)

### **Biology**

An Environmental Impact Assessment (No. 239) was prepared and adopted by the City Council in 1979 as part of the Calaveras Ridge Estates Planned Unit Development. The EIA determined that development of the subdivision would result in no impact to biologic resources and, subsequently, the subdivision is mostly developed with single-family residences. However, staff conducted a site visit and could not determine whether burrowing animal holes are within the undeveloped project site. Therefore, **staff recommends** as a condition, that prior to any grading permit issuance, the applicant provide to City staff a biologic site assessment to determine the presence of burrowing owls on site. (*Special Condition #4*)

### **Lighting**

According to the Hillside Ordinance, outdoor lighting should use the minimum wattage lights that will safely illuminate the area and be shielded as not to be directly visible from off-site. Proposed exterior lighting on the project site includes wall mounted building lights and landscape lighting along the side and rear of the structure. The proposed wall mounted building lights are Dark Sky Friendly certified (International Dark-Sky Association) outdoor fixtures with a 12.5-foot spill that minimizes glare and reduces light trespass. Based on the photometric plan the proposed location of outdoor lighting, style of light fixtures, and minimum quantity of fixtures, the proposed lighting will not be directly visible from off-site.

## **CONFORMANCE WITH LOCAL PLANS AND ORDINANCES**

### **Conformance with the General Plan**

The proposed project complies with the City's General Plan in terms of land use and is consistent with Guiding Principle 2.a-G-3, which encourages a variety of housing types and densities that meet the needs of individuals and families. The proposed development does not conflict with any General Plan Principles and Policies and the proposed project is also consistent with following Implementing Policies:

*Implementing Policy 2.a-l-18* Retains the natural character of the hillside by utilizing designs, colors, and materials that blends with the environment and terrain.

*Implementing Policy 5.a-1-2* Minimizes the threat to life and property through identification of active fault traces and geologic hazard zones.

### **Conformance with the Zoning Ordinance**

The project was reviewed for compliance with the Zoning Ordinance development standards and requirements for the Single Family Hillside (R1-H) and are described in Table 3 below:

**Table 3: Development Standards-Single-Family Hillside**

Required	Proposed	Complies?
<b>Building Height</b> 17 ft. west of Crestline	17 ft.	Yes
<b>Setbacks</b> Front: 40 ft. Side: 40 ft. Rear: 40 ft.	45 - 70 ft. 40 ft. & 40 ft. 138 ft.	Yes
<b>Size of Main Residence</b> 6,000 sq. ft. maximum	5,706 sq. ft.	Yes
<b>Impervious Coverage</b> 10 % of total lot area or 8,000 sq. ft. maximum	7,855.25 sq. ft.	Yes
<b>Crestline Zone of Protection (CZP)</b> No structure shall visually intrude into the CZP.	Structure does not visually intrude in the CZP	Yes

In addition, development standards for the Calaveras Ridge Estates Planned Unit Development (PUD 23.5) require 40-foot front, side, and rear setbacks, as well as a 3-car garage, with all other development standards in conformance with the Hillside Ordinance (Section 45). As proposed, the project is in conformance with PUD 23.5 development standards.

### **Visual Impacts**

The proposed project is not within a major visual gateway or scenic corridor, as shown on the Scenic Resources and Routes General Plan Map (Figure 4-6). However, as part of this application, the applicant submitted a View Point Analysis (See Attachment 1 - Sheet C2) to demonstrate the visual impact from the Valley Floor. Cross sections from 3 designated viewpoints (VP): (VP 3: Escuela Parkway, VP 4: I-680 & Jacklin Road, & VP 5: Cardoza Park) demonstrate that the proposed structure will not visually intrude into the crestline zone of protection or impact the natural quality of the crestline and the slopes immediately below.

### **Site & Architectural Guidelines**

Section 45.09-7 of the City's Hillside Ordinance sets forth guidelines for the Commission and Council to consider in their review of Hillside homes. These guidelines are summarized below along with comments regarding the proposed plan's conformance with them.

**Table 4: Site and Architectural Guidelines**

<b>Site &amp; Architectural Guidelines</b>	<b>Comments Regarding Subject Proposal</b>
<b>(a) Avoid Unreasonable Interference with Views and Privacy</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Complies with the 17' maximum height limit.</li> <li><input type="checkbox"/> Would not unreasonably interfere with views from surrounding properties or views of the hillside based on the view obstruction and restriction analysis provided in the plans.</li> <li><input type="checkbox"/> As proposed, the residence is located approximately 80' from the adjacent hillside home to the south, approximately 230' from the residence to the northwest, and surrounded by vacant lots to the west and north. Based on the location and distance from adjacent properties, the project will not interfere with privacy.</li> </ul>
<b>(b) Preserve Natural Landscape</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> As proposed, the home is designed to blend with the natural contours.</li> </ul>
<b>(c) Minimize Perception of Excessive Bulk</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> As proposed, the one-story residence includes a basement therefore will not give the appearance of excessive bulk.</li> </ul>
<b>(d) Impairment of Light &amp; Air</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> The proposed one-story residence will not impair light and air on adjacent existing residential structures because it is located at least 80 feet away to the south of the project site.</li> </ul>
<b>(e) Minimize Grading</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> The proposed amount of grading exceeds the 1,500 square feet, thus requiring a recommendation from the Planning Commission to City Council. The cubic yards cut would be used for landscaping on site, and export.</li> </ul>

#### **California Environmental Quality Act**

The project is exempt from further environmental review pursuant to Section 15303 (Class 3 (a) - "One single-family residence... in a residential zone"), of the California Environmental Quality Act (CEQA) Guidelines.

#### **Neighborhood/Community Impact**

The proposed project is for the construction of a one-story, single-family residence in the Calaveras Ridge Estates Planned Unit Development (PUD 23.5), located in the Single-Family Hillside (R1-H) zoning district. As discussed, the project is in conformance with the Zoning Ordinance development standards for the Hillside district, as well as development standards for the Planned Unit Development. The proposed project, as conditioned, will not negatively impact the surrounding Hillside or residential development.

Based on the analysis and conclusions of this report, the proposed project is not anticipated to have any adverse impacts on parking or be detrimental to the health and safety of the public. In addition, the project will not have adverse effects upon the adjacent or surrounding development, such as shadows, view obstruction, or loss of privacy.

#### **RECOMMENDATION**

Close the Public Hearing. Recommend approval of 'S' Zone Approval No. SA2005-2 to the City Council based on the findings and subject to the conditions listed below:



## **FINDINGS**

### ***General Plan***

1. The proposed project is consistent with the Hillside –Very Low Density land use designation and Implementing Policies of the General Plan.

### ***Zoning Ordinance***

2. The proposed project, as conditioned, is consistent with the Milpitas Zoning Ordinance in that the proposed development conforms to the land use and development standards of the Single-Family Hillside (R1-H) Combining District.

### ***'S' Zone***

3. As conditioned, the layout of the site, design of the proposed building, and landscaping would be compatible and aesthetically harmonious with adjacent and surrounding development. The proposed residence is located in an existing Single-Family Hillside (R1-H) zoning district and Planned Unit Development (PUD 23.5). Materials include stucco, stone veneers, elevated entry, and Eco Stone driveway. In addition, the proposed landscaping will enhance the Hillside zoning district.

### ***Planned Unit Development***

4. The proposed new residence is located in an existing Planned Unit Development (PUD 23.5) and is in conformance with the PUD development standards in terms of setbacks, height, and garage size.

### ***CEQA***

5. The project is Categorically Exempt from the requirements of the California Environmental Quality Act (CEQA) in that it meets the definition of Section 15303, (Class 3 (a) - "One single-family residence... in a residential zone").

## **SPECIAL CONDITIONS**

1. This approval is for the development of a 5,706 square foot single-family residence, landscaping, and grading, as shown on the approved plans, dated April 25, 2007, and as modified by these conditions of approval. Any modification to the project, as approved, will be subject to PUD 23.5 Development Standards and may require an 'S' Zone Approval-Amendment, pursuant to Section 42.00 of the Milpitas Zoning Ordinance, and may require Planning Commission and City Council review. (P)
2. Any addition to the residence shall comply with the findings and the recommendations of the Fault Investigation Report dated February 3, 2006.
3. The applicant shall comply with the findings and recommendations prepared Fault Investigation Report dated February 3, 2006. To ensure compliance, the applicant shall submit a letter from a licensed geotechnical engineer certifying that all the recommendations have been incorporated and that a detailed site-specific soil investigation be performed to address the seismic slope stability issues as well as provide a recommendation for foundation design and other geotechnically related parameters prior to issuance of any building or grading permits. (P)

4. Prior to grading permit issuance, the applicant shall provide to City staff a biologic site assessment by a Biologist or Ecologist to determine the presence of burrowing owls on site. If the biologic assessment determines burrowing owls exist on-site, the site assessment recommendations shall be adhered to prior to onset of any grading activities. (P)
5. A letter by the Homeowner's Association approving the proposed wrought iron fence and gate along the front property line shall be included as part of the building permit submittal for the fence. (P)
6. The proposed project shall be conducted in compliance with all applicable federal, state, and local regulations. (P)
7. If, at the time of submittal for any building permits, there is a project job account balance due to the City for recovery of review fees, review of permits will not be initiated until the balance is paid in full. (P)
8. Prior to issuance of the grading permit, the applicant shall submit an erosion control plan to the approval of the Planning Division. Erosion control measures shall be in place prior to the start of any work and maintained until the completion of construction. (P)
9. During all construction activities on-site, the project applicant/developer shall adhere to the following Best Management Practices as suggested by BAAQMD: (P)
  - a. Watering all active construction areas twice daily and more often during windy periods. Active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers or dust palliatives.
  - b. Cover all trucks hauling soil, sand, and other loose material or require all truck to maintain at least 2 feet freeboard level within their truck beds.
  - c. Pave, apply water three times daily or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at the construction site.
  - d. Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
  - e. Sweep streets daily with water sweeper if visible soil material is carried onto adjacent public streets.
  - f. Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
  - g. Suspend excavation and grading (all earthmoving or other dust-producing activities during periods of high winds when watering cannot eliminate visible dust plumes or when winds exceed 25 mph (instantaneous gusts).
10. Prior to certificate of occupancy all landscaping shall be installed. (P)
11. Prior to grading permit, the applicant shall record with the Santa Clara County Recorders office a hold harmless agreement with the deed for the property disclosing that the site is located within a landslide area, which may have higher than normal potential landslides. This agreement would hold harmless the City from future landslides resulting from

development of a site within a landslide area. The City Attorney shall draft said agreement.  
(P)

12. The issuance of building permits to implement this land use development will be suspended if necessary to stay within (1) available water supplies, or (2) the safe or allocated capacity at the San Jose/Santa Clara Water Pollution Control Plant, and will remain suspended until water and sewage capacity are available. No vested right to the issuance of a Building Permit is acquired by the approval of this land development. The foregoing provisions are a material (demand/supply) condition to this approval. (E)
13. At the time of building permit plan check submittal the developer shall submit a grading plan and a drainage study prepared by a registered Civil Engineer. The drainage study shall analyze the existing and ultimate conditions and facilities. The study shall be reviewed and approved by the City Engineer and the developer shall satisfy the conclusions and recommendations of the approved drainage study prior to building permit issuance. (E)
14. Prior to building permit issuance developer shall satisfy the conclusions and recommendations of the *Soils Engineering and Geologic and Seismic Hazards Evaluation Reports* by Earth Systems Consultants dated 1981-1982, *Preliminary Geologic Assessment* by Terrasearch dated 6/8/2005, and *Fault Investigation* by John Coyle & Associates dated 2/3/2006. (E)
15. Prior to building permit issuance, developer must pay all applicable development fees, including but not limited to, connection fees (water, sewer and storm), treatment plant fee, plan check and inspection deposit, and 2.5% building permit automation fee. (E)
16. All existing on-site public utilities shall be protected in place and if necessary relocated as approved by the City Engineer. No permanent structure is permitted within City easements and no trees or deep-rooted shrub are permitted within City utility easements, where the easement is located within landscape areas. (E)
17. The developer shall not obstruct the noted sight distance areas as indicated on the City standard drawing #405. Overall cumulative height of the grading, landscaping & signs as determined by sight distance shall not exceed 2 feet when measured from street elevation. (E)
18. The U.S. Environmental Protection Agency (EPA) has empowered the San Francisco Bay Regional Water Quality Control Board (RWQCB) to administer the National Pollution Elimination Discharge System (NPDES) permit. The NPDES permit requires all dischargers to eliminate as much as possible pollutants entering our receiving waters. Contact the RWQCB for questions regarding your specific requirements at (800) 794-2482. For general information, contact the City of Milpitas at (408) 586-3329. (E)
19. The design of this project shall include adequate Best Management Practices (BMPs) to eliminate pollutant from entering the offsite drainage systems. (E)

20. The developer shall submit the following items with the building permit application and pay the related fees prior to building permit issuance:
  - A. Storm water connection fee of **\$3594**, water connection fee of **\$1910**, sewer connection fee of **\$1908** and wastewater treatment plant fee of **\$880**.
  - B. Water Service Agreement(s) for water meter(s) and detector check(s).
  - C. Sewer Needs Questionnaire and/or Industrial Waste Questionnaire.Contact the Land Development Section of the Engineering Division at (408) 586-3329 to obtain the form(s). (E)
21. If the existing services (water, sewer and storm) are not adequately sized to serve this development, plans showing new services must be submitted and approved prior to building permit issuance. (E)
22. Prior to any work within public right of way or City easement, the developer shall obtain an encroachment permit from City of Milpitas Engineering Division. (E)
23. Apply applicable Guidelines for New Developments and Hillside Landscaping Water Conservation Policy (Resolution # 6066). (E)
24. If trees existed on the site, it is a standard condition per Milpitas Municipal Code Chapter 2, Title X (Ord. No. 201) that the developer may be required to obtain a permit for removal of any existing tree(s). Contact the Street Landscaping Section at (408) 586-2601 to obtain the requirements and forms. (E)
25. The developer shall call Underground Service Alert (U.S.A.) at (800) 642-2444, 48 hrs prior to construction for location of utilities. (E)
26. At the time of building plan check submittal, the developer shall incorporate the changes shown on Engineering Services Exhibit "S"(dated 2/5/2007) in the design plans. (E)
27. It is the responsibility of the developer to obtain any necessary encroachment permits or approvals from affected agencies and private parties. Copies of these approvals or permits must be submitted to the City of Milpitas Engineering Division. (E)
28. The Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA) under the National Flood Insurance Program shows this site to be in Flood Zone "D". (E)

#### **NOTES TO THE APPLICANT**

Submitted drawings are not reviewed nor approved for Building and Fire permits and construction. These notes are provided below to assist with the Building permit and Fire Department permit processes.

1. When and if a gate is proposed at driveway entrance, provide a KNOX lock on chain for Fire Department use. If the gate is provided with an electronic code, the code shall be provided to the fire department. Contact Fire Department at (408) 586-3365 for application. (F)
2. Fire apparatus access roads shall be provided for every building hereafter constructed when any portion of an exterior wall of the first story is located more than 150 feet from fire apparatus access as measured by an approved route around the exterior of the building, California Fire Code Section 902.2.1. Modifications to the entry drive and the turn-about are required. As a mitigating measure, the Milpitas Fire Department will accept an upgrade to the required automatic fire sprinkler system from NFPA 13D to a standard NFPA 13 system or other acceptable mitigation measure (acceptable to the Milpitas Fire Department). If there are any questions please do not hesitate to contact me at the Fire Prevention Division at (408) 586-3383. (F)
3. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with a surface so as to provide all weather driving capabilities. Grass Pavers shall not be installed within the required Fire Department access road. The Fire Department requires all weather driving capabilities road. Grass Pavers may be used at the turn-around and the turn-out provided design and installation provides support for fire apparatus equipment. The minimum access width shall be 14' and the minimum vertical clearance shall be 13'-6". Access road shall show dimensions, and construction details at time of building permit submittal. (F)
4. The gradient for a fire apparatus access road shall not exceed 17%, the maximum approved by the Fire Chief. (F)
5. The required fire apparatus access road, turn-around and the turn-out shall not be obstructed in any manner, including parking of vehicles. The minimum required widths and clearances shall be maintained at all times. (F)
6. All occupancies constructed hereafter in hillside area designated as Hazardous Fire Area, shall have installed an automatic fire sprinkler system meeting the minimum Life-Safety requirements for dwellings as specified in NFPA 13D. Appendix II-A UFC as amended by Section V-300-2.126 MMC. (F)
7. Fire Safety during construction, alteration or demolition shall be in conformance with the CFC Section 8704. (F)
8. Combustible construction shall not begin until fire apparatus access roads are installed and water mains and hydrants are operational. CFC Sections 8704.2 and 8704.3. (F)
9. For each sleeping room, provide at least one window or door that opens directly into a public street, public alley, yard or exit court. The emergency door or window shall be operable from the inside to provide a full clear opening without the use of separate tools. Escape or rescue windows shall have a minimum net clear openable area of 5.7 square feet. The minimum net clear openable height dimension shall be 24 inches. The minimum net clear openable width

dimension shall be 20 inches. When windows are provided as a means of escape or rescue, they shall have a finish sill height not more than 44 inches above the floor. Section 310.4, California Building Code. (F)

10. Provide approved smoke detectors in accordance with CBC 310.9. (F)
11. Provide approved spark arresters for all chimneys. (F)
12. Provide adequate clearance of brush and vegetative growth. CFC Section 1103.2.4. (F)
13. Provide a telephone prior to construction. CFC Section 8704.1. (F)
14. Applicable codes: 2001 CBC, CPC, CMC, 2004 CEC, 2005 California Energy Code, CFC and 2002 Milpitas Municipal Code. (B)
15. Minimum roof class "B" is required at hillside construction per 2002 Milpitas Municipal Code, Title II-3-2.08. (B)
16. Wood structural members exposed to weather shall be pressure treated or redwood 2001 CBC, section 2306.12. (B)
17. In enclosed private garage, ventilation shall comply with 2002 Milpitas Municipal Code section II-3-2.04. (B)
18. Provide one-hour occupancy separation between garage and residence per 2001 CBC, section 302.4, exception 3. (B)
19. All structures and their elements located in the hillside area shall be designed to withstand basic wind load of 80 mph at exposure "C" and shall conform to requirements of Appendix Chapter 23 per 2002 MMC, section II-3-2.10. (B)
20. All plans for structures located in the hillside area must be prepared and designed by Civil, Structural Engineer or Architect licensed in the State of California per 2002 Milpitas Municipal Code section II-3-2.10. (B)
21. Obtain permits from Health Department if there is a septic system prior to applying for a Building permit. (B)
22. A soil report shall be provided when applying for grading, site improvement and building permit. (B)
23. Paving shall comply with the Municipal Code section II-13-18. (B)
24. All non-structural flat concrete work shall be as per 2002 Milpitas Municipal Code sections II-13-17.05. (B)

25. Grading and erosion control plan shall be submitted when applying for grading permit as per Municipal Code II-13-10.01 and shall be prepared by a licensed Civil Engineer. (B)
26. Site must be recently surveyed for the verification of the slopes. Signature of surveyor or engineer must show date of survey. (B)
27. All downspouts shall be connected to an enclosed storm drainage system, or an alternate method to be approved by the City of Milpitas Building Division and discharge to an approved drainage system. (B)
28. Prior to issuance of building permit, all the easements including private storm drain easement through adjacent parcels shall be recorded. The developer shall include interim erosion control provisions and schedules in the construction plans for areas, which will not have permanent erosion control features installed (such as landscaping) prior to any occupancy so that erosion and sediment control can be sustained through the rainy season. 2002 Milpitas Municipal Code section II-13-11. (B)

(P) = Planning Division

(E) = Engineering Division

(F) = Fire Department

(B) = Building Division







PROPERTY CALCULATION  
JUL 10 1964

APN 029-06-087  
Pilotage

890 Calaveras  
TRACT NO. 7328, LOT  
NO. 4

1875

where:  
 $I$  is contour interval in feet  
 $L$  is the combined length of the lot in square feet

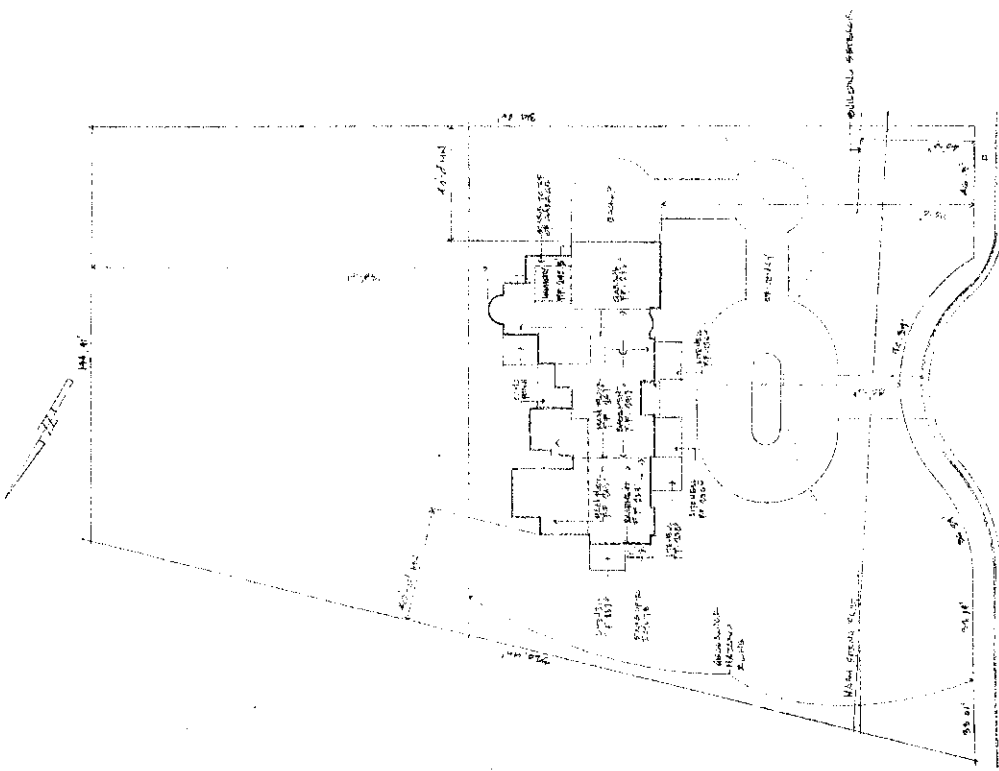
530

$$A = 55,322 \text{ 磅}$$

$$S = \frac{(100)(1720)(5)}{10000} = 15.58$$

365 Reed Street, Santa Clara, California 95050-3107  
(408) 727-8202 Fax (408) 727-8205 mloclan@earthlink.net

20150-172 (2014)



CLARK, V. A. R. A. S. P. N. D. G. S. A.

SITE PLAN 4.1.70'

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Sgt. Christopher A. Davis  
San Diego, CA 92101

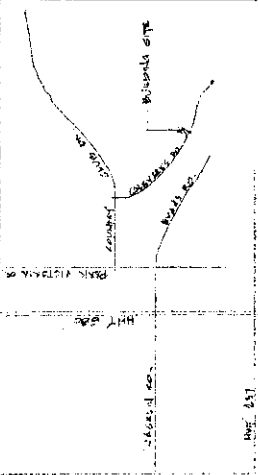
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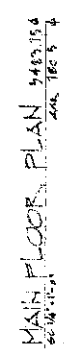
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GENERAL HANDS

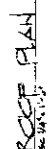
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VICINITY: 1460 40 acres









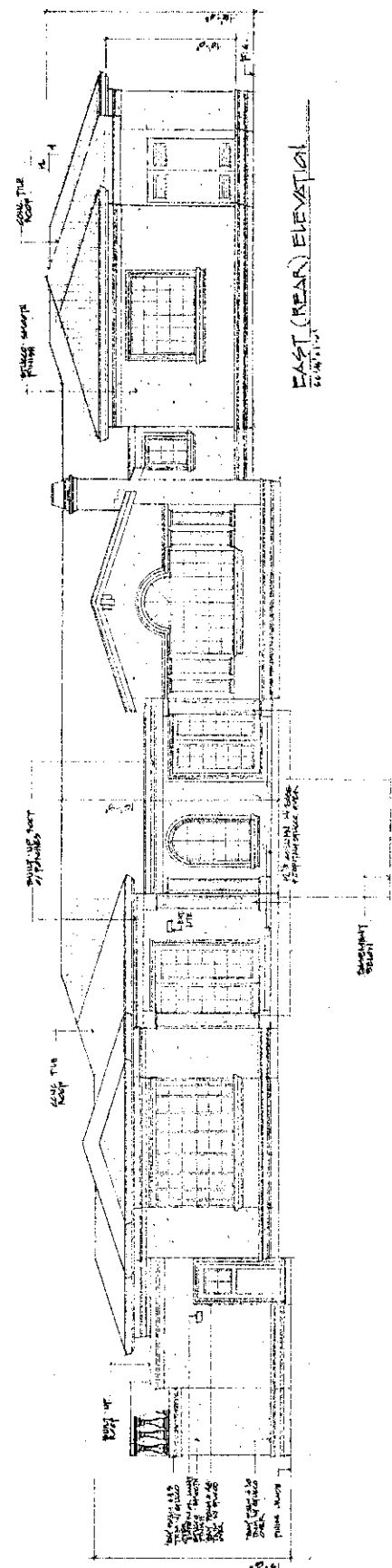
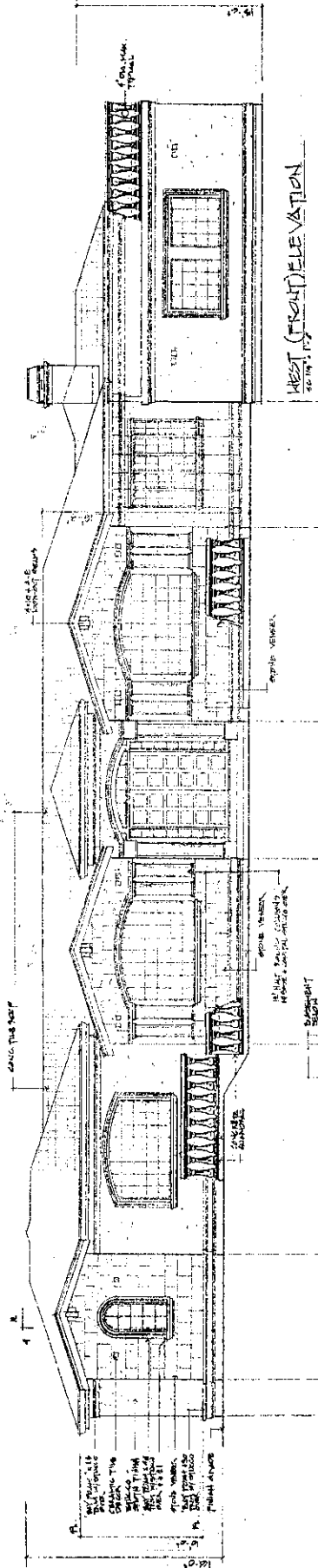
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DATE	
BY	
CHECKED	
APPROVED	
REVISIONS	

A NEW CUSTOM HOME FOR  
MR. & MRS. HARRY PANCHAL  
800 CALIFORNIA ROAD IN, MOUNTAIN VIEW, CA

401 N. Central Ave., Campbell, CA 95008  
(408) 370-7800 Fax: (408) 370-7800  
www.panchal.com

DATE	5-1-00
BY	John Panchal
CHECKED	John Panchal
APPROVED	John Panchal
REVISIONS	

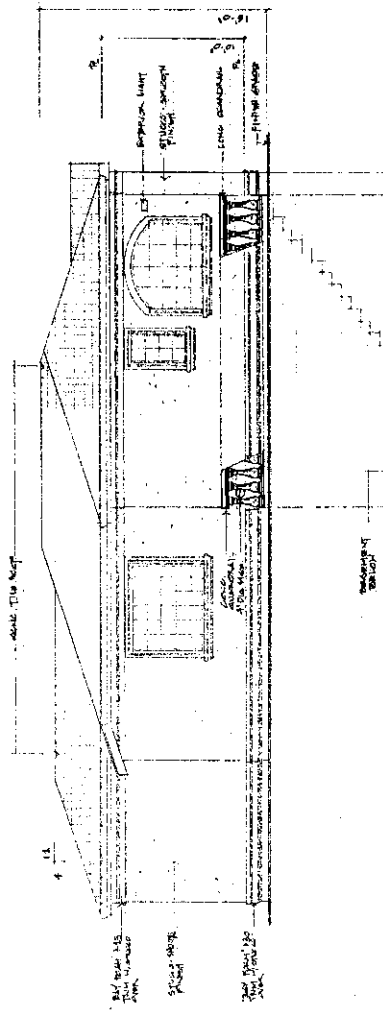


411 N. Central Ave., Campbell, CA 95008  
 (408) 379-7900 Fax (408) 379-7901  
 email: jmc@jmcarchitect.com

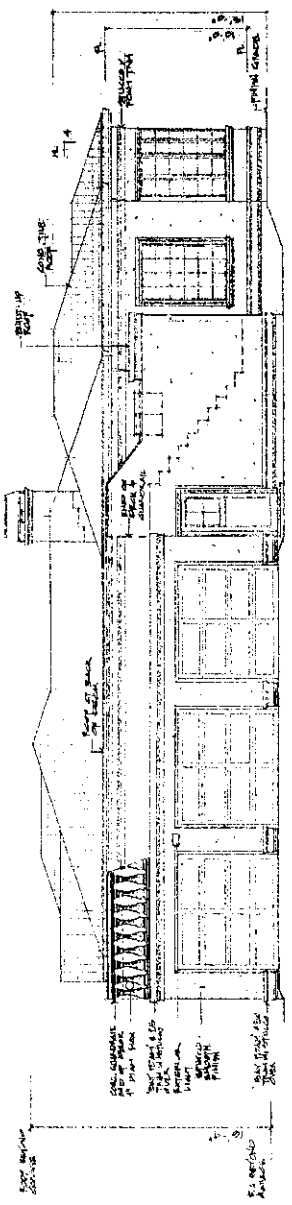
A NEW CUSTOM HOME FOR:  
 MR. & MRS. HARVEY PANKHAL  
 210 CALLEMAN ROAD IN KIPPERS, CA

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NORTHWEST SIDE ELEVATION



SOUTH (RIGHT SIDE) ELEVATION



PHOTOMETRIC PLAN

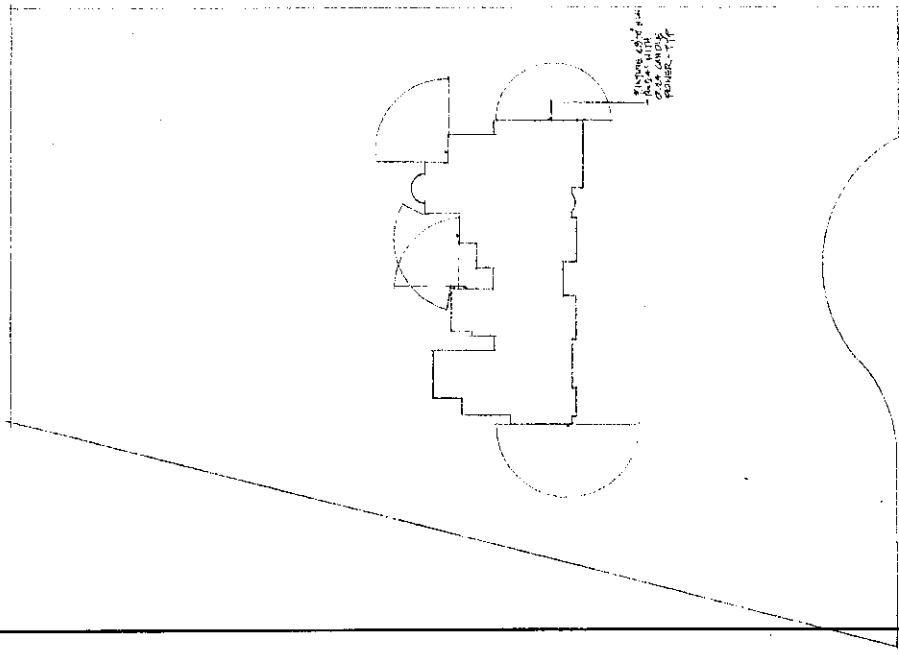
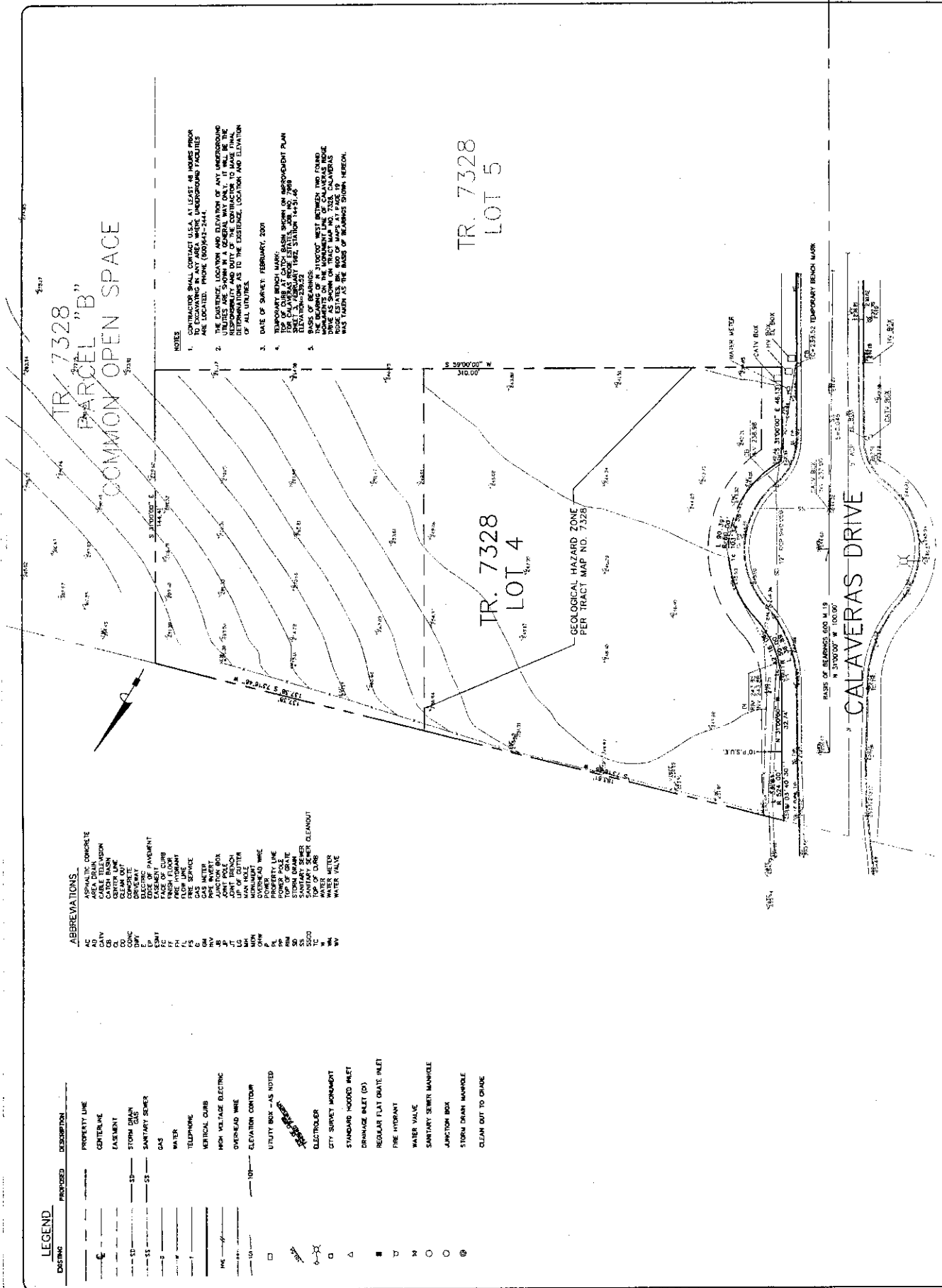
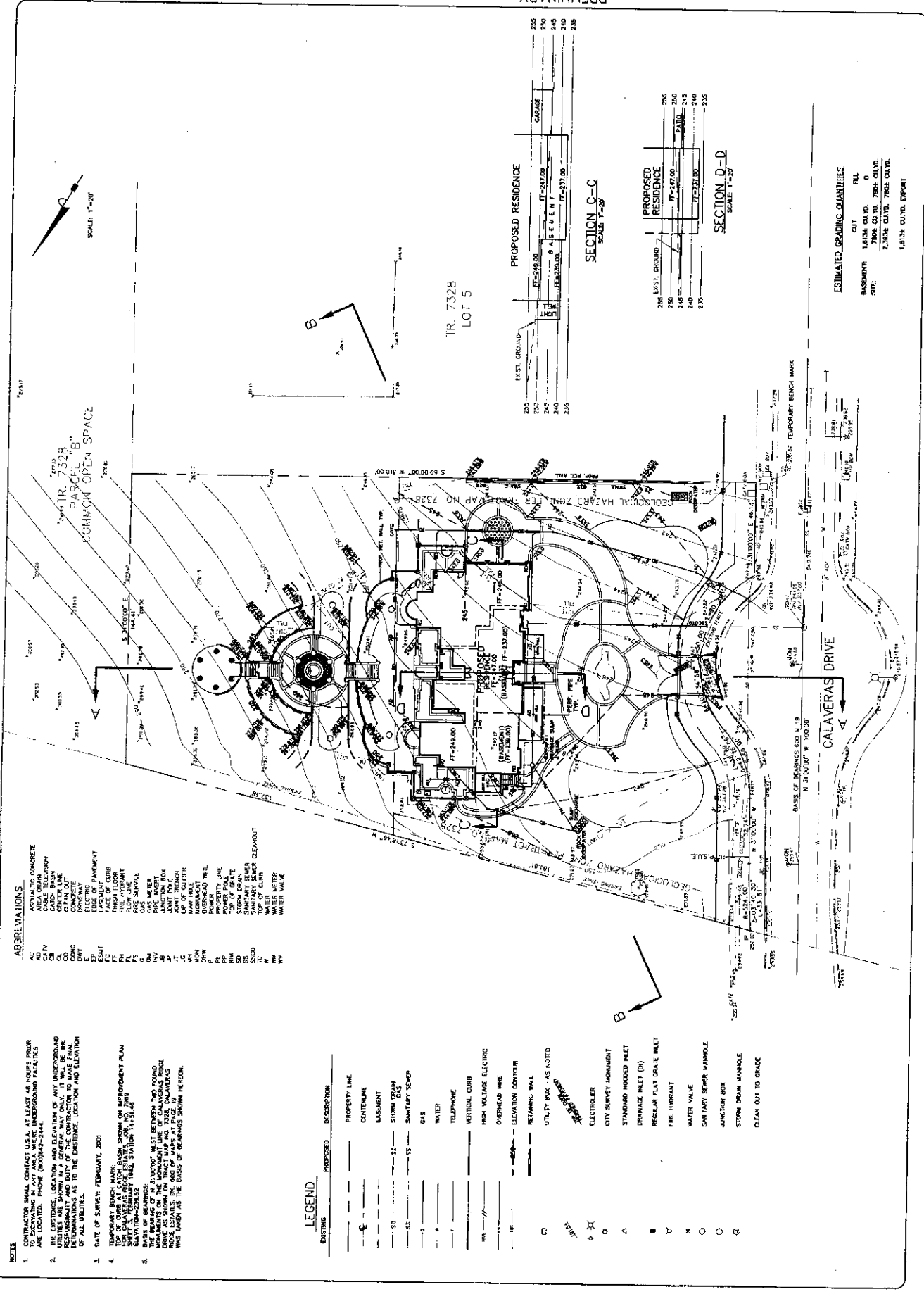


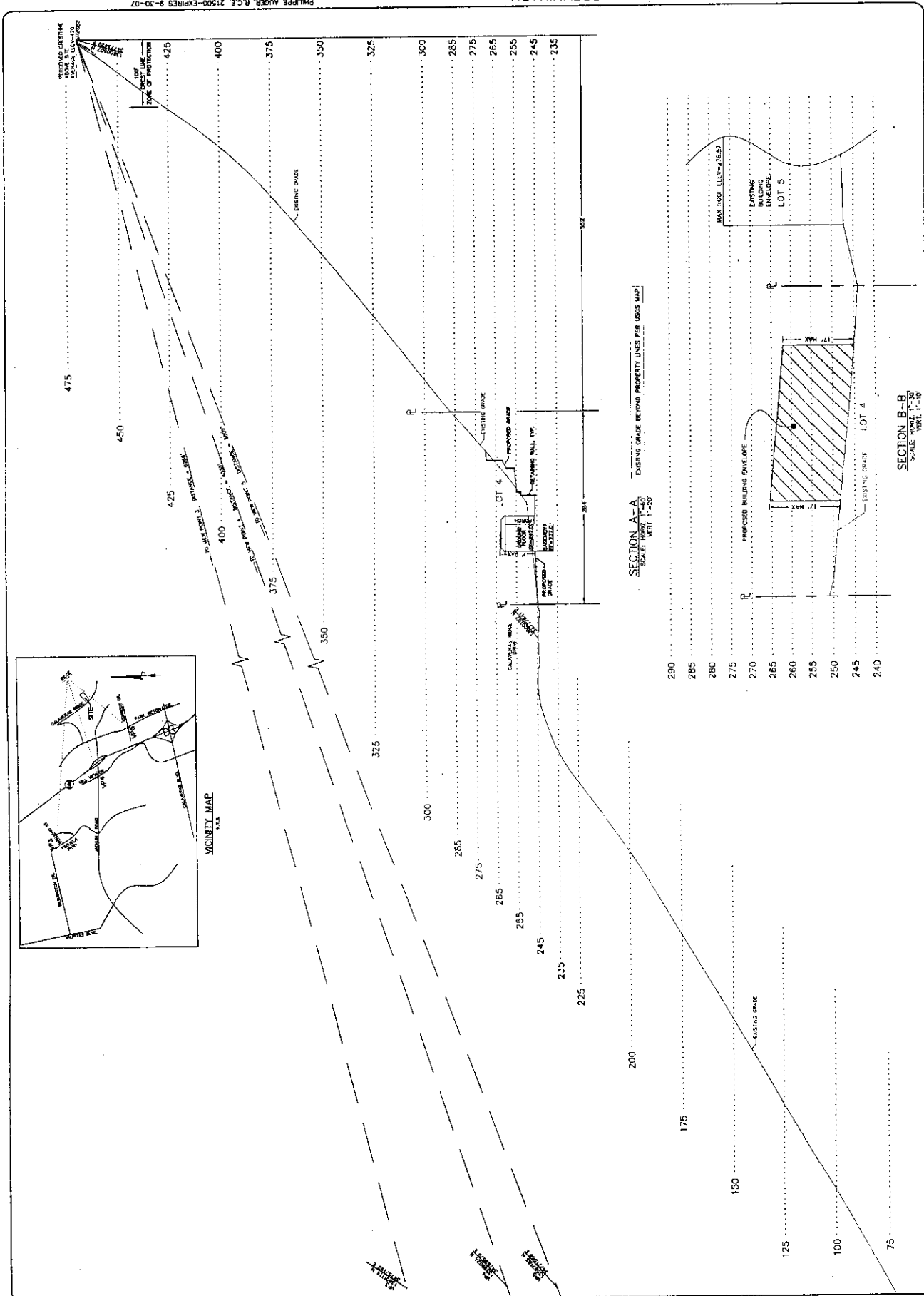
DIAGRAMA 10/20/01

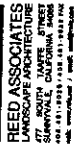






## PRELIMINARY





**REED ASSOCIATES**  
LANDSCAPE ARCHITECTURE  
477 SOUTH TAFFEE STREET  
SUNNETTVALE, CALIFORNIA 94066  
402.481.0020 / 402.481.0028 FAX  
web: [www.reed.us](http://www.reed.us) / email: [info@reed.us](mailto:info@reed.us)

898 CALAVERAS RIDGE ROAD  
MILPITAS, CA

ISSUE \_\_\_\_\_ DATE \_\_\_\_\_  
CITY CHS. SWIT 10-7-04



Approved	pj
Drawn	JOB
Project No.	03-00
Scale	1"=16'-0"
Issue Date	01/20/01

LANDSCAPE LAYOUT  
PLAN

L1.0

of  
Sheet

1. FOR ADDITIONAL INFORMATION SEE DETAILS AND SPECIFICATIONS.

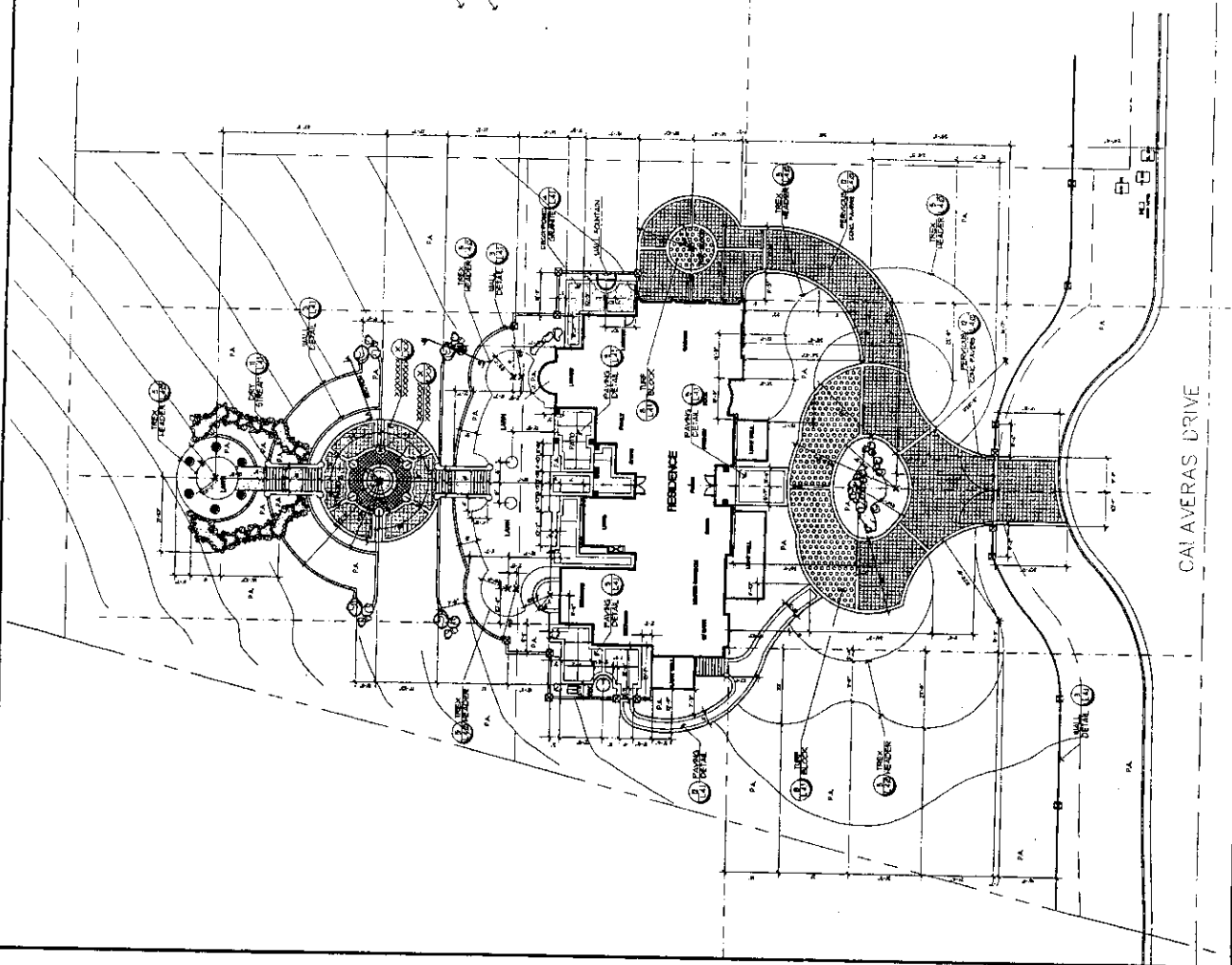
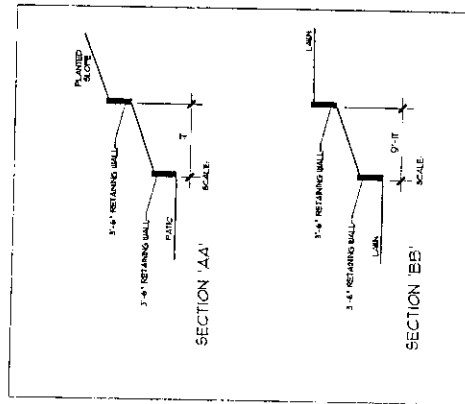
2. MIN. 12" SLOPED DRAINAGE AWAY FROM ALL BUILDINGS
3. IN THE EVENT OF ANY DISCREPANCIES BETWEEN THIS PLAN AND ACTUAL SITE CONDITIONS, THE CONTRACTOR AGREES IT IS TO BE NOTED IMMEDIATELY.
4. ENTIRE SITE IS TO BE ROUGH GRADED BY THE GRADING CONTRACTOR TO A MINIMUM FOOT OF FINISH GRADE. LANDSCAPE CONTRACTOR IS TO BE THE GRADE ALL LANDSCAPE AREAS.
5. ALL UTILITIES ARE TO BE PROTECTED DURING CONSTRUCTION. IN THE EVENT OF A CONFLICT WITH THE PLANS AND UTILITIES THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY. ANY DAMAGE TO UTILITIES, STRUCTURES OR OTHERS SHALL BE REPAIRED AND CAUSED BY THE LANDSCAPE CONTRACTOR SHALL BE PAID FOR BY THE LANDSCAPE CONTRACTOR AT NO EXPENSE TO THE OWNER.
6. THE WORK IN THESE DETAILS AND SPECIFICATIONS MAY RUN CONFLICTIVE WITH THE SPECIFICATIONS WITH OTHER CONTRACTORS.
7. ALL DIMENSIONS ARE TO BE TAKEN FROM FACE OF CURB OR FINISH GRADE UNLESS OTHERWISE NOTED ON PLANS.
8. P.A. - INDICATES LANDSCAPE PLANTING AREA.
9. CONTRACTOR SHALL KEEP EXISTING SITE DRAINAGE UNOCCUPIED AND UNOCCUPIED SYSTEM WITHIN 10' OF ITS PROPER TO BE ANY DIGGING. CALL
10. UNDERGROUND SERVICE ALERT 1.800.542.2444.

EXISTING TREE TO REMAIN

12.  $\phi \rightarrow \psi \rightarrow \dots \rightarrow \phi$  - BASE LINE FOR DIMENSIONS



$\oplus$  —  $\otimes$  —  $\oplus$  —  $\oplus$  — BASE LINE





REED ASSOCIATES  
LANDSCAPE ARCHITECTURE  
477 WEST CHAMBER STREET  
SANTA ANA, CALIFORNIA 92701  
TEL: (714) 941-1111 FAX: (714) 941-1112

RESIDENCE FOR  
MR. & MRS. PANCHAL

888 CALAVERAS RIDGE ROAD  
MILPITAS, CA

DATE	DESCRIPTION



CERTIFICATE AND USE OF DOCUMENTS  
This certificate and use of documents is given by the undersigned to the client, who may use the same in the project for which it was prepared, and may also use the same in other projects, provided that the client is responsible for the accuracy of the information and data furnished to the undersigned, and that the undersigned is not responsible for the accuracy of the information and data furnished to the client.

APPROVED	DATE

LANDSCAPE MATERIALS  
AREA TAKE-OFF

L1.1

Sheet of

### LANDSCAPE AREA TAKE-OFF

#### PERMEABLE LANDSCAPE AREAS

ITEM DESCRIPTION	AREA
1 GRASS AND GROUND COVER	1458 S.F.
2 LAWN	1458 S.F.
3 TURF BLOCK	1458 S.F.
4 PERVIOUS CONCRETE PAVING	4223 S.F.
5 DRY STREAM BED	581 S.F.
<b>TOTAL SQUARE FOOTAGE</b>	<b>49083</b>

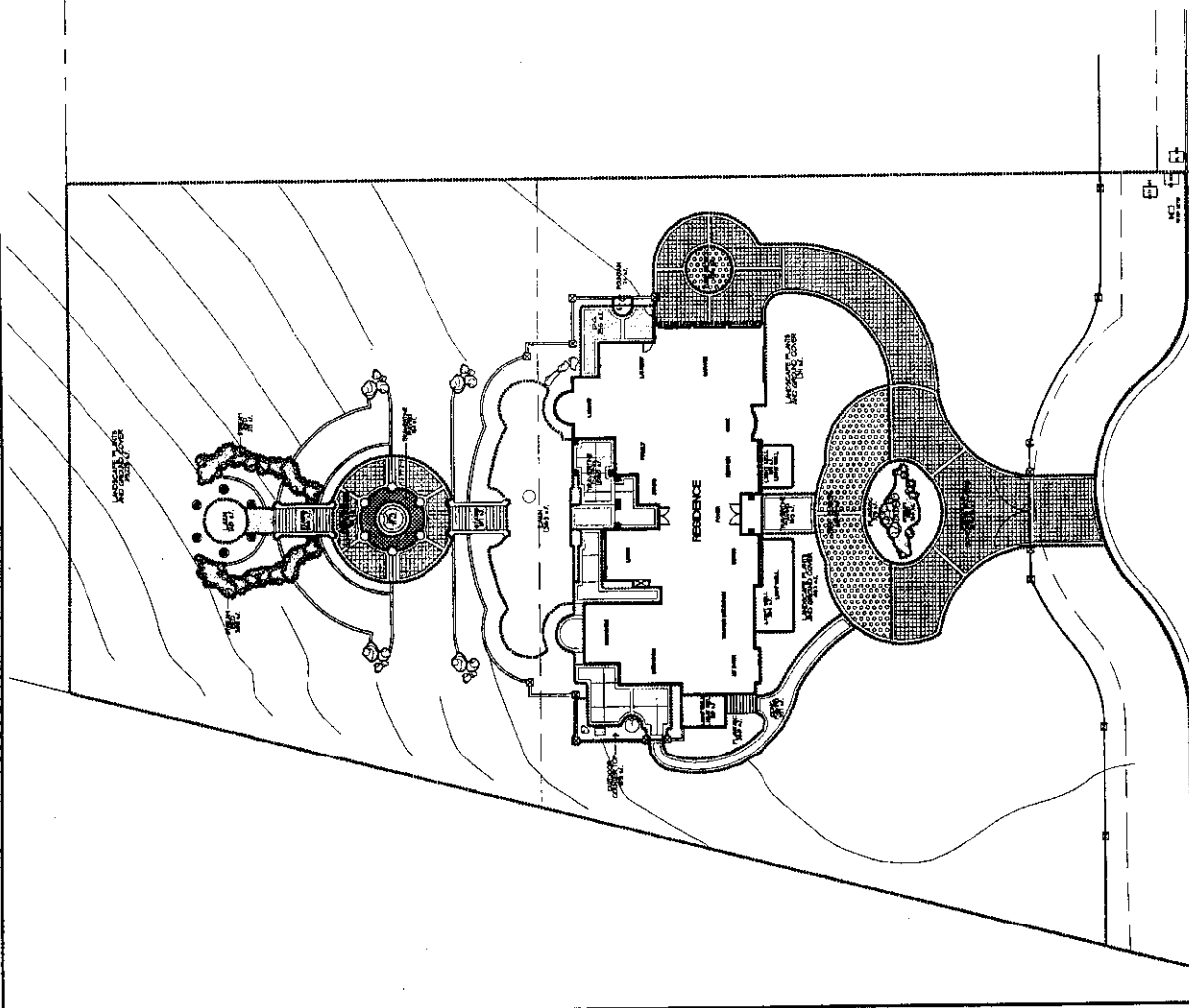
#### NON-PERMEABLE LANDSCAPE AREAS

ITEM DESCRIPTION	AREA
6 TRAVERTINE PAVING	140 S.F.
7 COLORED CONCRETE PAVING	250 S.F.
8 DECOMPOSED GRANITE	250 S.F.
9 PERVIOUS LIGHT METAL	445 S.F.
10 CONCRETE STAIRS	77 S.F.
11 WALL FOUNTAIN	24 S.F.
12 OUTDOOR COUNTER TOP	87 S.F.
<b>TOTAL SQUARE FOOTAGE</b>	<b>302</b>

#### GENERAL LANDSCAPE MATERIALS

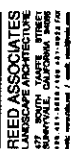
ITEM DESCRIPTION	AREA
1 LANDSCAPE LOW WALL	647 L.F.

TOTAL LANDSCAPE SQUARE FOOTAGE 52,075



CALAVERAS DRIVE





RESIDENCE FOR  
MR. & MRS. PANCHAL

B98 CALAVERAS RIDGE ROAD  
MILPITAS, CA



ISSUE \_\_\_\_\_ DATE \_\_\_\_\_

**OWNERSHIP AND USE OF DOCUMENTS**

Approved	By	Reviewed	By
Drawn	JOS	Reviewed	SR
Project No.	03.001		
Scale	1"=18'-0"	Issue Date	06/20/05

LANDSCAPE  
IRRIGATION PLAN

L2.0

Sheet of

### IRRIGATION LEGEND

[illegible]

### IRRIGATION NOTES

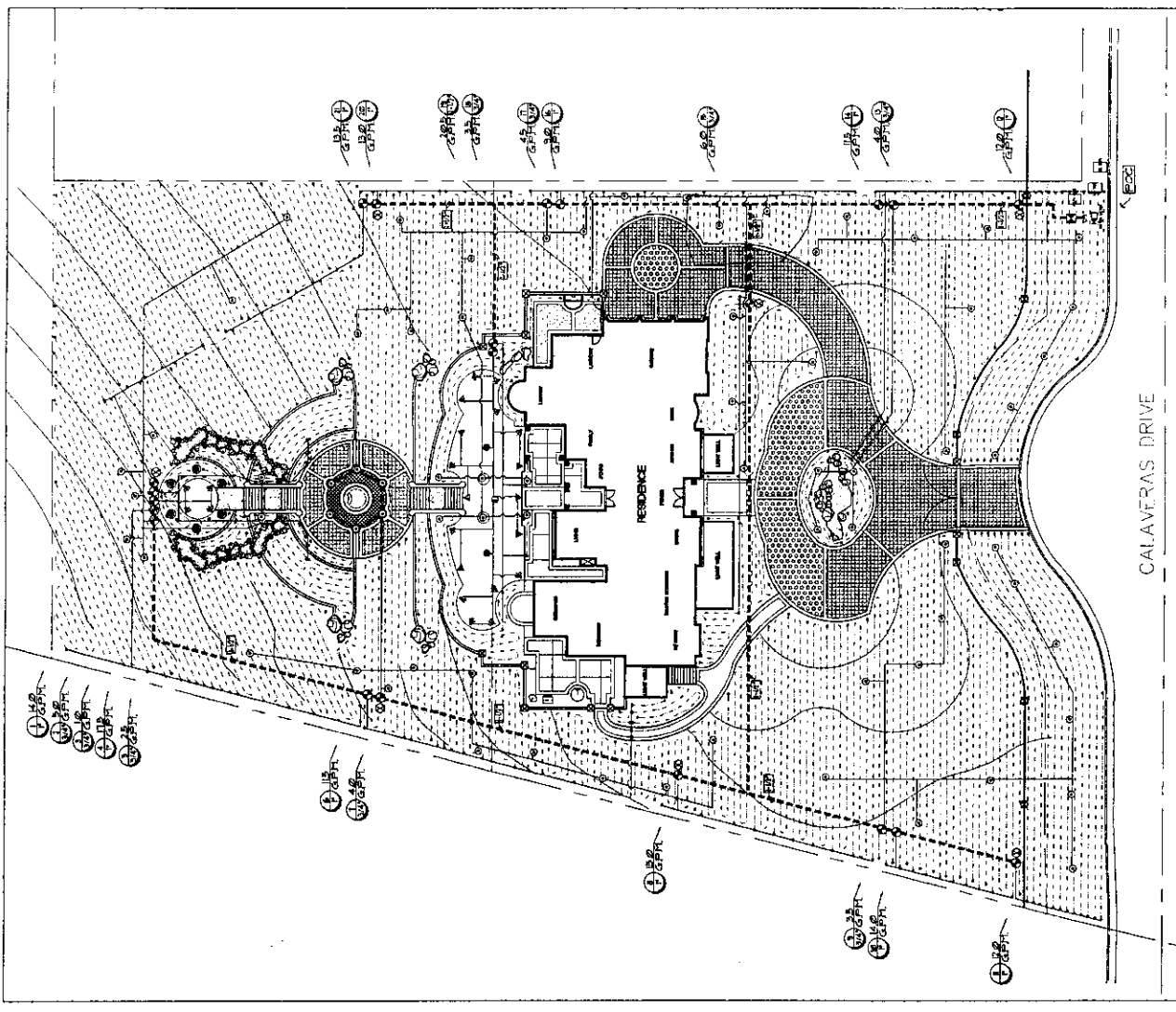
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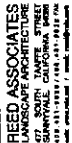
## ANNUAL PRIGATION REQUIREMENT

43,028 SQUARE FEET TOTAL LANDSCAPE WITH IRRIGATION  
56,995 GALLONS PER YEAR FOR ESTABLISHED PLANT MATERIAL  
ON ANY WATERING SCHEDULE TO ALLOW DRAIN WATER

## IRRIGATION PIPE SIZING CHART

CLASS 200		SCHEDULE 40	
1/2"	0-4 GPM	1/2"	0-4 GPM
3/4"	5-9 GPM	3/4"	5-8 GPM
1"	10-16 GPM	1"	9-16 GPM
1 1/4"	17-26 GPM	1 1/4"	16-22 GPM
1 1/2"	27-35 GPM	1 1/2"	23-30 GPM
2"	36-55 GPM	2"	31-50 GPM





898 CALAVERAS RIDGE ROAD  
MILPITAS, CA

DATE \_\_\_\_\_



**OWNERSHIP AND USE OF DOCUMENTS**  
 In drawing, specifications and replies thereto by the Architect, and all drawings, specifications, and replies thereto by the Architect, shall be the property of the Architect. They are to be used only with respect to the Project and are not to be used on any other project. Substitution of materials or methods of construction by the Contractor for the purposes of convenience with the Project shall not be considered a substitution. It is recognized that the Architect may, in the course of the Project, be required to make substitutions, however, the Contractor shall not be responsible for such substitutions.

Approved	by	
Drawn	JRB	Reviewed
Project No.	03	Size
Scale	1" = 16'-0"	
	Issue Date	08/28/05

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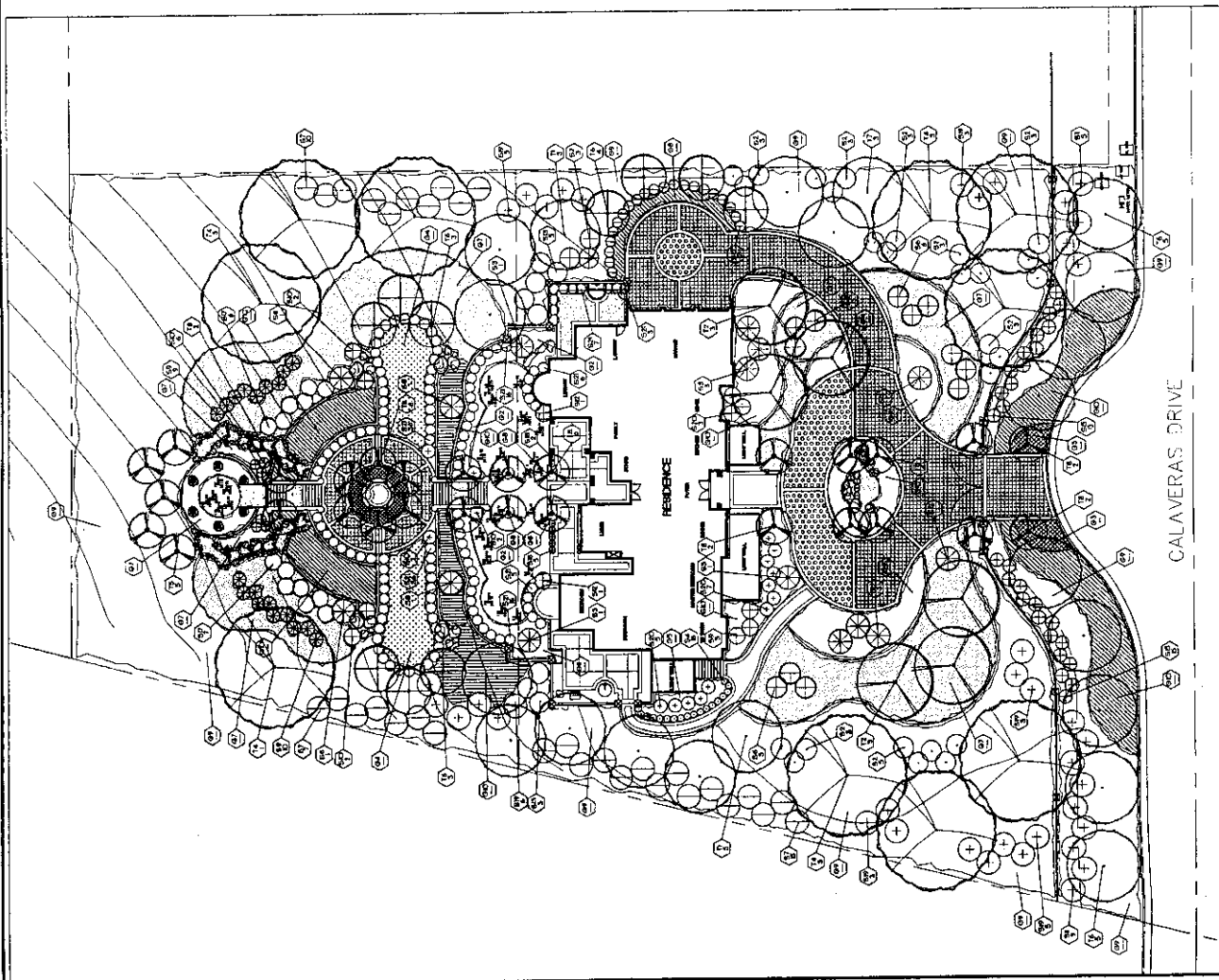
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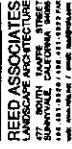
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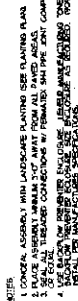


898 CALAVERAS RIDGE ROAD  
MILPITAS, CA

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Project No.	03.00
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Issue Date	08/20/05

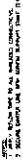
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12 PERVIOUS CONCRETE PAVERS

### 7 EMITTER LINE VACUUM VALVE DETAIL



## 11 AGRIFIM-'DURA-FLO-PC' EMITTER LINE

## 6 TREE PLANTING DETAIL

### 10 'Y'- FILTER DETAIL

## 5 TRFX HEADER DETAIL

## 9 CONCRETE STEPPING PAVEMENT



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# RESIDENCE FOR MR. & MRS. PANCHAL

898 CALAVERAS RIDGE ROAD  
MILPITAS, CA

DATE	
ISSUE	



OVERSIGHT AND USE OF DOCUMENTS  
The undersigned hereby certifies that the design and construction documents were prepared by the undersigned or under the direct supervision and control of the undersigned, and that the undersigned is a duly licensed professional in the State of California.

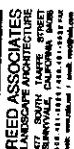
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## LANDSCAPE DETAILS

L4.1

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1 WROUGHT IRON FENCE NOT TO SCALE	2 STUCCO COLUMN NOT TO SCALE	3 LOW WALL / LOW COLUMN NOT TO SCALE	4 DECOMPOSED GRANITE NOT TO SCALE	5 FOUNTAIN NOT TO SCALE	6 FRONT WALL FOUNTAIN NOT TO SCALE	7 GATE DETAIL NOT TO SCALE	8 TURFBLOCK DETAIL NOT TO SCALE	9 TRAVERTINE PAVING NOT TO SCALE	10 GRAVEL PAVING NOT TO SCALE	11 DRY STREAM BED NOT TO SCALE	12 COLORED CONCRETE NOT TO SCALE



RESIDENCE FOR  
MR. & MRS. PANCHAL  
898 CALAVERAS RIDGE ROAD  
MILPITAS, CA

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## LANDSCAPE SPECIFICATIONS

15.0

5/15/2015

## APPENDIX 1: STUDY AND LITERATURE PLANNING

- MULLER | PETER

[illegible]

- ## COMPACTION

1. COMPACT JACKPILL FOR TRENCHING TO A DRY DENSITY EQUAL TO ADJACENT BACKFILLING FOR AN IN-PLACE UNIT WEIGHT OF 120 PCF.

\_\_\_\_\_

**A** **FUNCTION** **OPINION** **WITH** **CONSEQUENTLY** **THAT**

- 7

E. CUT PIPE CUT STRAIGHT AND TRUE.

- ### 3. RESISTANT PAPER FOR LEADS

A. CORRECT ANY LANGUAGE INDICATED DURING TESTS.

## CONTROL WIFE

- OF RECYCLED COMPOST MATERIAL W/ SOIL ANALYSIS APPROVED IN ADVANCE

100

- THESE SURFACES MUST BE COATED BY SCRAPING TO ENSURE ROOT PENETRATION. AVOID SMOOTHING CIRCULAR SIDES.

THE FOOT FITS WITH "PRELUBED SOX" TO THE BOTTOM OF THE BOOT BALL. THEN SET THE PLAIN IN AN UPRIGHT POSITION IN CENTER OF HOLE. BACKFILL SPACE AROUND IT WITH PLACING MIX.

- STUDIES ON CONCENTRATIONS IN THE OCEAN AREAS.

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- 3

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- STUDY DESIGN**

1

- 5 POUNDS 15.00

## ANTHONY, &amp; MUIR, CHAN

40. *Thomson's* *Electric*



SOIL ENGINEERING AND GEOLOGIC AND  
SEISMIC HAZARDS EVALUATION REPORTS

CALAVERAS RIDGE ESTATES

Milpitas, California

Nov. 30 1981; OCT. 20 1982; DEC. 18, 1982

Prepared for

CALIFORNIA PACIFIC PROPERTIES

Fremont, California

By

EARTH SYSTEMS CONSULTANTS  
1900 Embarcadero Road  
Palo Alto, California

1981 - 1982

ATTACHMENT B

File No. C1-1098-C1  
November 30, 1981

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## SOIL ENGINEERING REPORT

### INTRODUCTION

#### Purpose and Scope

The purposes of this study were to explore and evaluate the surface and subsurface soil conditions at the site and, based on the conditions revealed by the exploration and testing programs, to provide recommendations for development of the site for twelve, one to two story wood frame, single family residences.

The scope of our work included: a review of previously published geological reports relating to the site; a preliminary site reconnaissance by a Soil Engineer; drilling and sampling from eight test borings; laboratory testing of relatively "undisturbed" and bulk samples obtained from the site; evaluation of surface and subsurface conditions in relation to the proposed development; and preparation of this report. The study was limited in scope to the buildable areas as shown on the Tentative Map prepared by Westfall Engineers, undated, at a scale of 1" = 80', entitled "Alternative B-1, Calaveras Ridge Estates". Specifically excluded is the offsite portion of Calaveras Ridge Drive. Since the access road is outside the scope of this report, additional exploration and analysis is required to assess the surface and subsurface conditions and evaluate the proposed alignment.

#### Location and Description of Site

The proposed development is located on an irregularly shaped 40.84-acre portion of the Cuciz Property in the City of Milpitas, Santa Clara County, California (see Figure 1, inside back cover). The property, hereinafter referred to as the "site", is bound on the north by privately owned undeveloped land, on the east and south by Tularcitos Creek, and on the west by a private residence and the remaining portion of the Cuciz Property.

Elevations across the site range from a low of approximately 114 feet along Tularcitos Creek to a high of approximately 450 feet near the northeastern site corner. The steeper portions of the site and portions along Tularcitos Creek will be left as natural open space. Slope gradients in the portions to be developed for homesites range from nearly level to about 25%. Boundary and topographic information was taken from the Tentative Map of Calaveras Ridge Estates, Alternative B-1, prepared by Westfall Engineers, Inc.

The majority of the site is recently disced grassland containing occasional fruit trees. A farmhouse, barn and other structures are clustered in the area of proposed Lot 13, and are surrounded by numerous trees including several large eucalyptus.

#### Proposed Development

Based on the Tentative Map approved for Calaveras Ridge Estates, the site will be subdivided into seventeen residential lots of minimum one acre net area. Natural open space (common areas, landscape easements, etc.) and the geologic hazard zone

have been identified on the Tentative Map as non-buildable areas. We understand that initial development will consist of street and utility improvements with individual lot development to be performed on a custom basis. Access to the site is planned via Calaveras Ridge Drive: a proposed public street connecting to the existing Country Club Drive approximately 1,200 feet to the northwest of the site; and as a private street within the development. As noted on the Tentative Map, that portion of Calaveras Ridge Drive outside of the site will be dedicated to the City of Milpitas.

#### Geologic Summary

The geology of the site is described in a Geologic and Seismic Hazard Investigation Report prepared by Earth Systems Consultants, dated August 29, 1978. That report was prepared for the Cuciz Property, which included the subject site (41 acres) and an additional parcel located between the site and Evans Road. The principal findings of that report were :

- 1) Traces of the Hayward Fault cross the site.
- 2) The Crosley Fault lies west of the site beneath Evans Road.
- 3) There are no apparent active or ancient landslides on the site.
- 4) The site can be divided into six development categories according to the guidelines established by the City of Milpitas (as shown on Figure 8 in that report).

## CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on the data obtained from the exploration and testing programs described in this report, and for the development referred to on Pages 1 and 2 of this report.

### General

1. The natural soils as evaluated are considered suitable for the proposed development provided that the recommendations of this report and those of the Geologic and Seismic Hazards Investigation Report are incorporated into the project design and are implemented during construction.
2. Structures for habitation are not recommended within the Geological Hazards Zone approximately shown on Figure 1.
3. The areas indicated for residential development on the Tentative Map appear to be in Development Categories 1 and 2 (acceptable for homesites) as identified in the Geologic and Seismic Hazards Investigation Report.
4. In addition to seismic considerations, the principal potentially adverse geotechnical factors affecting the site are slope stability, erosion and expansive soil. Recommendations for mitigating these factors are presented in this section of the report.
5. In order to avoid siting of the structure proposed for Lot 12 over a geologic contact the buildable area should be set back approximately 180 feet

west of the east property line along Tularcitos Creek. This recommended set back is graphically indicated on Figure 1.

6. Structures at the site should be designed in accordance with the standards published in the latest edition of the Uniform Building Code for Seismic Zone 4, or to a more stringent standard if present within the local governing building code.

#### Grading and Site Development

7. Grading for individual lot development is expected to be minimal. Site grading operations which do occur, including stripping, clearing and placement of compacted fill, should be performed in the manner outlined by the following itemized recommendations and in accordance with, or augmented by, the "Suggested Grading Specifications", presented in Appendix B.

8. Existing fill, tree trunks, roots, foundations, septic tanks, underground storage tanks, trash, abandoned utility lines, fences and debris should be removed from the areas to be developed. Existing water wells that are to be abandoned should be properly capped according to the requirements of the Santa Clara County Health Department. The strength of the cap should be at least equal to the adjacent soil. The final elevation of the top of the well casing must be a minimum of 36 inches below any adjacent grade prior to any grading or fill operations. House foundations should not be placed over a capped well.

9. The upper 2 to 4 inches of soil over much of the site is contaminated with organic matter. In areas to be graded, this upper material should be stripped

and stockpiled for later use in landscaping. The exact depth of required stripping should be evaluated by the Soil Engineer during grading.

10. Ruts or depressions resulting from the removal of existing fill, structures, foundations, septic tanks, or trees, should be properly cleaned and backfilled with engineered fill compacted to the minimum relative compaction specified, based on ASTM Standard Test Method D1557-70. Cleaning and backfilling operations should be conducted under the observation of the Soil Engineer.

11. Following the stripping operations, exposed surfaces should be scarified to a minimum depth of 8 inches, moisture conditioned as necessary, and compacted to the minimum required relative compaction. The final 8 inches of soil on all building pads should be compacted to a value between 85 and 90% of relative compaction prior to receiving foundations or concrete slabs. Fill below the upper 8 inches of final pad grade should be compacted to a minimum of 90% relative compaction. Native soil should be compacted while at a moisture content approximately 3% above the optimum value for the soil.

12. The Soil Engineer should be notified at least 48 hours prior to commencement of grading operations, so that the engineering observation and testing personnel may be coordinated with work of the contractor.

13. It is recommended that fill slopes be over-filled during placement of fill and trimmed back after construction, to create a firm surface. Finished slopes should be track-walked or otherwise compacted under the observation of the Soil Engineer. Final slopes (either cut or fill) should not be constructed steeper than 2:1 (horizontal to vertical) or higher than 5 feet, without further



review and evaluation by the Soil Engineer. Where fill is to be placed in swales or on sloping ground steeper than 6:1, keys should be excavated into the undisturbed "bedrock" materials to provide a positive bond between the fill and bedrock.

#### Subdrains

14. Subdrains are recommended beneath sidehill fills and fills in the swales where groundwater accumulation may occur, and in cut areas where seepage conditions are encountered during construction and along the fault trace. Recommendations regarding the locations, types and depths of subdrainage facilities will be provided at the time of final grading plan review. Adjustments in the locations, lengths and/or other additions to subdrains may be recommended by the Soil Engineer during grading operations based on exposed field conditions.

15. Typically, subdrains will consist of perforated metal pipes or perforated plastic pipes surrounded with imported filter rock. Filter rock should be well graded aggregate conforming in gradation to that of Class 2 Permeable Material, as described in Section 68 of the California Standard Specifications (Caltrans). Subdrain pipes should be not less than 6 inches in diameter, except for laterals less than 50 feet long which may be 4 inches in diameter. The subdrains should be connected at their lower ends to either a storm drain system for the project or to another approved discharge facility. Subdrain outlets should be located on the as-built plan by the project Civil Engineer for future reference.

Foundations

16. Due to the high expansion characteristics of the upper soil layers, pier and grade beam systems are recommended as the most suitable foundation types for the proposed structures unless grading removes the expansive material from the building pads.
17. Buildings constructed on portions of the lots where the original ground slope is 6:1 or flatter should be supported on drilled, cast-in-place, reinforced concrete piers a minimum of 10 inches in diameter, and penetrating at least 8 feet below the finish pad grade. Specific recommended depths should be determined on a lot-by-lot basis after individual lot grading. A skin-friction value of 400 p.s.f. may be utilized in pier design. When determining the load carrying capacity of the piers, the upper 24 inches of combined pier and grade beam embedment should be excluded in the calculations.
18. Resistance to lateral loading may be provided by passive resistance acting on the sides of piers. The upper 2 feet of pier measured from finish pad grade should be neglected in lateral resistance calculations. Passive resistance may be computed on the basis of an equivalent fluid weight of 160 p.c.f. for native soil and 250 p.c.f. for bedrock materials.
19. Buildings to be constructed on portions of the lots where the original ground slope is steeper than 6:1 may require modified foundation design (such as deeper piers), depending on the planned grading and exposed soil conditions on that lot. The need for, and details regarding, special design requirements will be assessed based on final building location plans and site grading plans.

20. Drilled, cast-in-place reinforced concrete piers should be a minimum of 10 inches in diameter. Piers supporting concrete grade beams or isolated interior posts should penetrate at least 7 feet below the finished soil pad. A skin friction value of 400 p.s.f. may be utilized in pier design. The upper 24 inches of combined pier and grade beam embedment should be excluded in the calculations, when determining the load carrying capacity of piers. Exterior and interior piers should be reinforced as designed by the engineer responsible for foundations. A minimum of one No. 4 bar, extending up from the bottom of the pier should be provided. When the pier supports a concrete grade beam, the bar should be tied with the top horizontal reinforcing bar in the grade beam.

21. Grade beams should extend at least 6 inches below the lowest adjacent grade and should contain at least one No. 4 bar near the top and one near the bottom of the beam cross-section. Actual design of the beam, including reinforcing, depth, size and spacing of piers will depend upon actual building loads and should be determined by the engineer responsible for the foundation design. The width of the grade beams should preferably be no greater than 6 inches. Should a wider beam be necessary for structural purposes, the depth of the pier may have to be increased to provide additional resistance to uplift.

22. During the placing of concrete for foundations, the mushroomed concrete spillage at the sides of the grade beams and at the tops of piers should be trimmed to the design size of the grade beams and piers, respectively. This should be done to reduce the contact area between the foundation units and the underlying expansive soils to minimize total uplift pressures on the units.

### Retaining Walls

23. This section presents preliminary design criteria for retaining walls. Whether incorporated into structures or free standing, retaining walls should be pier-supported. Piers for wall support should be designed in accordance with the previous section on foundations. Assuming a level backfill condition the following tabulated lateral earth pressures are applicable for preliminary design purposes:

<u>Wall Condition (level backfill)</u>	<u>Lateral Earth Pressure Condition</u>	<u>Equivalent Fluid Weight (p.c.f)</u>
Free-standing	active	90
Structurally constrained	at-rest	105

The tabulated values should be increased for sloping backfills or other surcharge conditions. The basis of the recommended lateral pressures assumes a "free draining" condition. If rotation about the top of the wall is constrained, at-rest pressures should be used and bending moments checked for both triangular and trapezoidal distribution.

24. Proper drainage behind the retaining walls is necessary to maintain a free draining condition. Drainage should be provided behind the wall by use of a perforated 4-inch minimum diameter drain pipe set within a vertical permeable filter blanket. The permeable filter material should have a minimum 12-inch width and extend from the top of the retaining wall footing to within 18 inches of the final exterior soil grade. The drain pipe should be placed near the top of the retaining wall footing, embedded in the filter material, sloped to drain, and

positively discharged into a catch basin or other positive drainage outfall facility.

25. Permeable filter materials for drain systems should consist of Class 2 Permeable per Section 68 of the California Standard Specifications (Caltrans). As an alternative, concrete aggregates may be used if completely encased in a filter cloth (E.O.S.  $\geq 70$ ) to mitigate migration of soil fines into the filter material.

26. The top 18 inches of backfill behind the retaining walls should be compacted native soil. The lower half of the 18 inch layer should be compacted to at least 90% relative compaction. The final half may be placed in a loose condition, to allow for landscape planting. Where sidewalks and/or pavement areas are to exist, either over or immediately behind retaining walls, the filter material should extend to the top of the wall.

#### Concrete Floor Slab-on-Grade Construction

27. Slab-on-grade construction in living areas is not recommended and is generally not compatible with pier and grade beam construction. Should the use of slabs-on-grade in living areas be desired, selective grading, special moisture conditioning of the soil, or other design changes may need to be incorporated into the project.

28. It is recommended that garage slabs be structurally separated from the perimeter foundations at the back and sides of the garage and underlain by a minimum of 4 inches of base rock or sand. Reinforcing the slab with heavy wire

mesh is recommended. The garage slabs should preferably be divided into at least four nearly equal segments by saw joints, divider strips, or other acceptable methods. Since the major difficulty with expansion usually takes place at the main garage door, it is recommended that at least three intermediate piers be used below the grade beam across standard two-car door openings. The garage slab and driveway should be tied to this grade beam to reduce the effect of expansion created differential movement of the slabs.

29. Special attention should be given to thorough moisture conditioning of the subgrade soil before placing the garage slabs, sidewalks, driveways and porches. The Soil Engineer should be contacted at least one week prior to the placement of concrete, so that an evaluation can be provided regarding the contractors method of moisture conditioning.

#### Utility Trenches

30. Excavation of utility trenches can probably be accomplished with a conventional trenching machine or a backhoe. It is expected that side walls of the trenches excavated in onsite material would be reasonably stable in a vertical cut to a depth of 5 feet. Deeper trenches should be properly braced or sloped in accordance with the requirements of Cal-OSHA.

31. Backfill of utilities should generally follow recommendations contained in the Standard Grading Specifications attached as Appendix B. Within the street, backfill should be placed in strict conformance with the requirements of the appropriate governing agency (Sanitation, Water District, etc.). Utility trench backfill within private property should be governed by the provisions of

this report relating to minimum compaction standards. In general, service lines extending inside of the property may be backfilled with native soils compacted to a minimum of 90% of maximum density. Backfill operations should be observed and tested by the Soil Engineer to monitor compliance with these recommendations.

General Construction Comments

32. Where no exterior pavement sections abut the completed structures, at least 6 inches of compacted soil should be backfilled against the outside of the perimeter foundations and be sloped away from the buildings. Pad grading and final lot grading should be such that positive drainage away from the structures is provided and that water will not pond near the structures or in the side or rear yard areas. Drainage swales and contouring of the pads should provide sufficient slope towards discharge points in the front or rear of the lots. Panning out of the soil pad to create crawl space under the structures is not recommended.

33. It is recommended that roof gutters be installed on the structures and solid pipes or splash blocks be provided at the downspouts to carry roof waters well away from the foundations. Surface drainage swales should be positioned to allow for rapid removal of rainwater away from the foundations. Concentrated or uncontrolled drainage should not discharge over fill, cut or natural slopes.

34. The trench and pits excavated for the Geologic and Seismic Hazards Investigation in 1978 have only been loosely backfilled. Their locations have been accurately surveyed by the design engineer and should be shown on the grading plans. Portions of the trenches which are located within 10 feet of the

proposed structures or pavements should be re-excavated and backfilled with compacted soil.

#### Plan Review

35. It is recommended that the soil engineer be provided the opportunity for a general review of final grading, improvement and foundation plans. This review is to assess general compliance with the earthwork and foundation recommendations of this report and implementation of the recommendations into the project plans and specifications.

36. Where lots are developed on a "custom" basis, recommendations regarding individual lot drainage, retaining wall design, slab-on-grade construction, and final foundation elements should be provided by the Soil Engineer as individual lot development plans become available.

#### Observation and Testing

37. It is recommended that the Soil Engineer be retained to provide services during construction of the grading, excavation and foundation phases of the work. This is to observe compliance with the design concept, specifications and recommendations which will allow for design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.



#### LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the borings. If any variations or undesirable conditions are encountered during construction, or if the actual construction will differ from that planned at the present time, Earth Systems Consultants should be notified so that supplemental recommendations can be given.
2. This report is issued with the understanding that it is the responsibility of the owner or of his representatives to ensure that the information and recommendations contained herein are called to the attention of the architect and engineers for the project and are incorporated into the plans, and that the necessary steps are taken to see that the contractors and subcontractors carry out such recommendations in the field.
3. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes outside of our control. Therefore, this report is subject to review and should not be relied upon after a period of three (3) years.

4. The body of the report specifically recommends that Earth Systems Consultants be provided the opportunity for a general review of the project plans and specifications and be retained to provide observation and testing services during construction. If Earth Systems Consultants is not accorded the privilege of making the recommended reviews and providing the recommended services, misinterpretation of the recommendations may result.
5. This report was prepared upon your request for our services, and in accordance with currently accepted geotechnical engineering practice. No warranty based on the contents of this report is intended, and none shall be inferred from the statements or opinions expressed herein.

GEOLOGIC AND SEISMIC  
HAZARDS EVALUATION REPORT

CALAVERAS RIDGE ESTATES

Milpitas, California

Prepared for

CALIFORNIA PACIFIC PROPERTIES, INC.

Fremont, California

By

EARTH SYSTEMS CONSULTANTS

1900 Embarcadero Road

Palo Alto, California

OCTOBER 1982

File No. C2-0706-M2  
October 20, 1982

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Purposes and Scope  
Proposed Development

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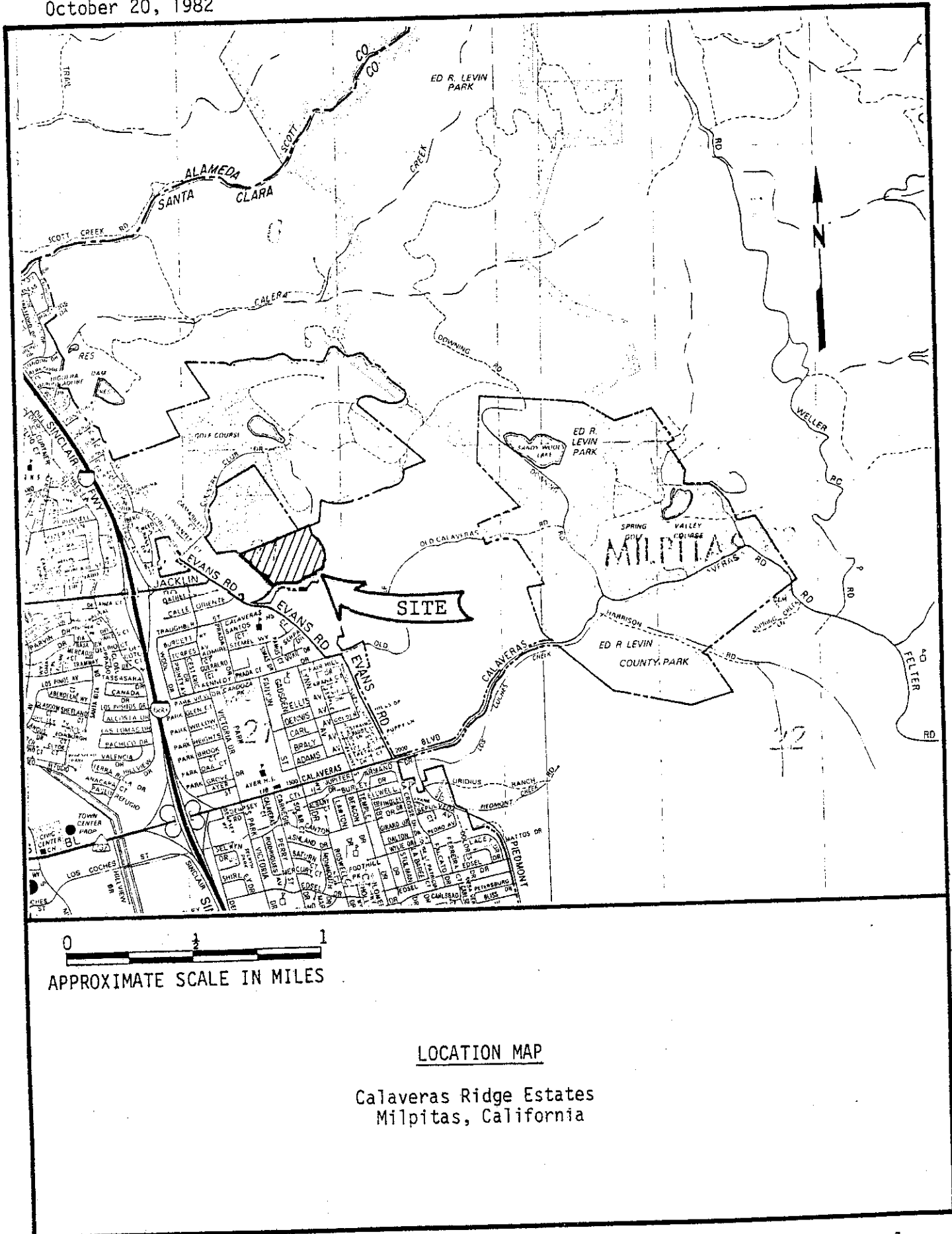
## GEOLOGIC AND SEISMIC HAZARDS EVALUATION REPORT

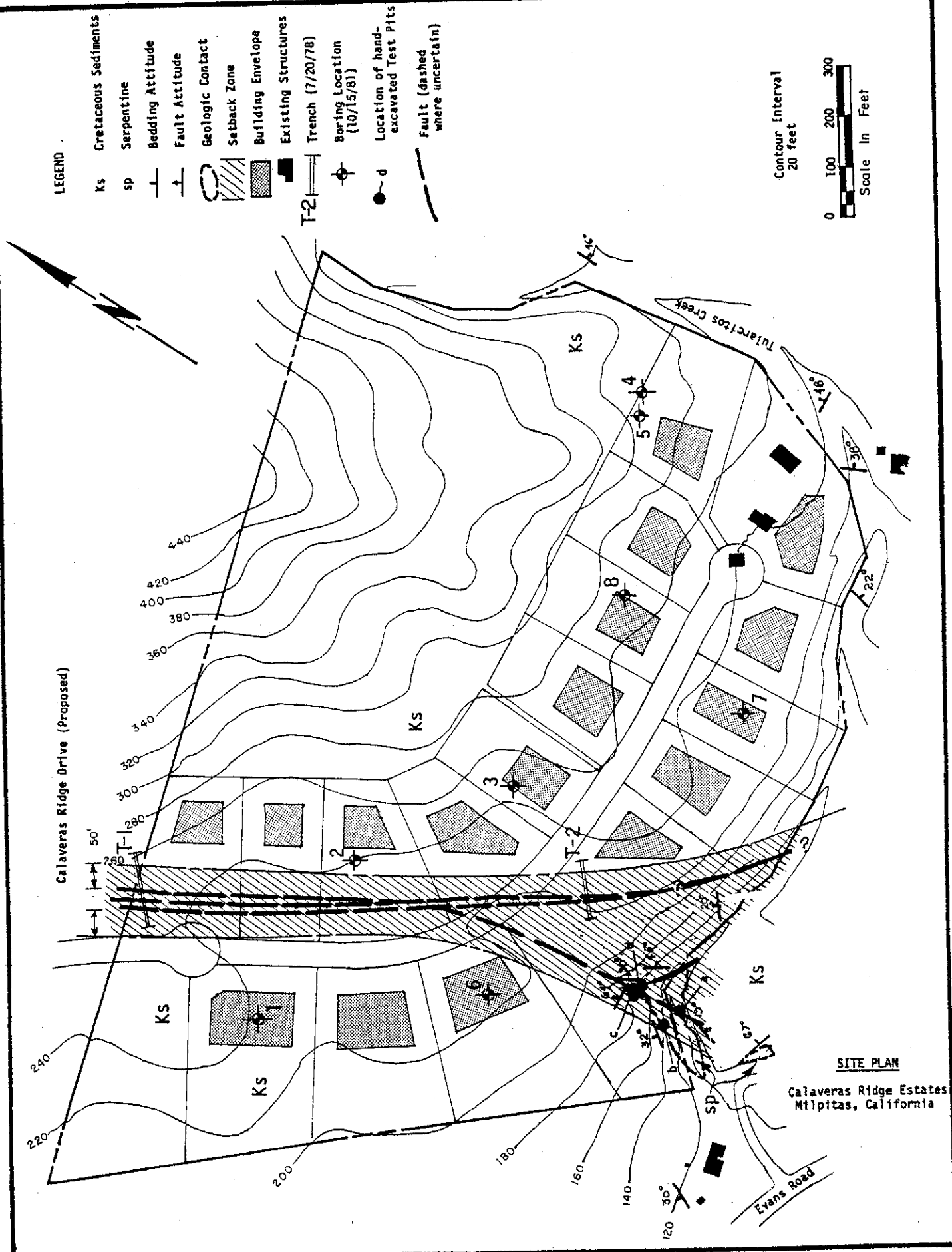
### INTRODUCTION

#### Location and Description of Site

The proposed Calaveras Ridge Estates development is located on the Cuciz Property in Milpitas, Santa Clara County, California (see Figure 1, page 2). The approximately 44-acre property, hereinafter referred to as the "site", is irregular in shape. It is bounded on the south and east by Tularcitos Creek, and on the west and north by privately-owned property. Boundary information was taken from a topographic map furnished by HMM Corporation, Civil Engineers, at a scale of 1-inch equals 40 feet, undated (made from air photos taken on May 17, 1979). This map was used as a base for the Site Plan (Figure 2, page 3).

Topographically, the site is located on the western flank of a northwest-trending ridge that is cut by Tularcitos Creek, which flows to the south and southwest in a channel that marks the eastern and southern boundaries of the property (see Figure 2). Most of the site consists of moderate to steep slopes on the west and south sides of the ridge. Elevations range from a high of 450 atop the ridge to a low of approximately 120 in the southern corner of the site, at Tularcitos Creek.





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The site has been used as pasture and for agriculture. There are the remnants of an old orchard on the south and west boundaries of the site. Most of the site has been grazed and plowed and supports a sparse growth of grassland vegetation. The banks and channel of Tularcitos Creek, however, support a dense growth of native riparian vegetation, including valley and live oaks, buckeye, pepper and bay laurel trees. There are a number of wood-frame structures on the site (see Figure 2), including a house, barn and storage sheds. The site is divided and bounded by wood and wire fences.

#### Purposes and Scope

The purposes of this study were to update and revise the report issued by Earth Systems Consultants on August 29, 1978, entitled "Geologic and Seismic Hazards Investigation, Cuciz Property, Milpitas, California."

Particular emphasis was placed on the possible presence of active or ancient landslides, and active faults.

Investigation procedures consisted of review of relevant geologic and soils reports and maps; study and interpretation of aerial photographs of the site vicinity; geologic reconnaissance of the site area; detailed mapping of the banks and channel of Tularcitos Creek; manual excavation of test pits; review of data acquired during the previous investigations on this site (Earth Systems Consultants 1978a, 1981), evaluation of seismic hazards; and preparation of this report. Discussions and site visits were made with Mr. Ron Mearns, Geologist for the City of San Jose, and Review Geologist for the City of Milpitas for this project.



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October 20, 1982

Conclusions and recommendations in this report are based on data acquired during this and the previous studies. Recommendations are made for minimizing observed and potential geotechnical problems. This report is not intended to provide recommendations for site grading or for the design and construction of residential foundations. These recommendations are presented in the Earth Systems Consultants Report issued November 30, 1981, entitled "Soil Engineering Report, Calaveras Ridge Estates, Milpitas, California."

#### Proposed Development

Westfall Engineers, Inc. prepared a plan entitled "Calaveras Ridge Estates", dated February 1982, at a scale of 1-inch equals 100 feet, which shows that the site is to be subdivided into seventeen (17) lots. One single-family residence is to be constructed on each lot, which will have a minimum lot size of one acre. A building envelope is designated on each lot (see Figure 2, page 3).

Access to the site will be via Calaveras Ridge Drive (proposed), which is to connect with Country Club Drive approximately 1,200 feet north of this site. Initial development will consist of the construction of Calaveras Ridge Drive and its private extension on the site; and the installation of utilities. The lots are to be developed on a custom basis.

The areas not designated for residential development or roads are to remain as open space. This includes the geologic setback zone along the traces of the Hayward Fault (see Figure 2).

File No. C2-0706-M2  
October 20, 1982

## RECOMMENDATIONS

The following recommendations should be implemented prior to the development of the property.

1. The Soil Engineering Report issued in November 1981, provides specific recommendations for the mitigation or correction of the identified geotechnical problems, site grading and foundation design. These recommendations should be implemented.
2. Crossing of the active Hayward traces (as shown in Figure 2) by utilities should be kept to a minimum. If they must do so, they should be equipped with shut-off valves, or whatever safety precautions are deemed necessary by the design or structural engineer for the service utility.
3. The restricted zones (development category 5.4) can be utilized for recreational purposes, roadways, etc. No structure for human habitation should be built within these zones.
4. The structures should be designed in accordance with the latest edition of the Uniform Building Code.
5. The trenches and pits excavated during this and the 1978 investigations have only been loosely backfilled. Their conditions should be taken into consideration in the design of improvements in those areas on this site.

File No. C2-0706-M2  
October 20, 1982

4. Traces of the active Hayward Fault affect the site. The potential for ground rupture to occur is very high along these fault traces, high in a zone 50 feet on either side of them (development category 5.4) and low elsewhere on the site (see Figure 16).
5. The potentials for the secondary seismic effects of lurch cracking, liquefaction or lateral spreading, are low over most of the site. Lateral spreading or lurching could occur locally along the unrestrained banks of Tularcitos Creek.
6. The potential for seismically-induced shallow landsliding to occur is high along the unrestrained banks of Tularcitos Creek, moderate on the east-facing slope east of the ridge, and low elsewhere on the site.
7. A major earthquake on the San Andreas or Calaveras Faults or a moderate to major earthquake on the Crosley or Hayward Faults could produce severe ground shaking at this site.

File No. C2-0706-M2  
October 20, 1982

## CONCLUSIONS

The following conclusions are drawn from the data acquired and analyzed during this investigation.

1. The site can be divided into five development categories which are depicted on Figure 16. The categories are based on our evaluation of the identified geotechnical problems (see table on Figure 16). The development categories are in accordance with the City of Milpitas Ordinance, Section 45, Hillside Combining District.
2. The proposed 17 building envelopes are located in development categories 1 or 2 and are, therefore, considered suitable for single-family, wood-frame structures, provided the recommendations of this report and those of the soil and foundation engineering report are implemented in the development of this site.



Environmental • Geotechnical • Special Inspections • Materials Testing

**TERRASEARCH** INC.

SERVING NORTHERN CALIFORNIA SINCE 1969

Project No.9982.G  
8 June 2005

GEOTECHNICAL

GEOLOGICAL

ENVIRONMENTAL

Mr. Haresh Panchal  
134 Sweetberry Court  
Santa Jose, CA 95136

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## GEOLOGIC/SEISMIC INVESTIGATION

### Purpose and Scope

The purpose of this investigation was to perform a preliminary assessment of the geologic conditions of the site in order to provide criteria for planning and design, and to establish recommendations as necessary for mitigation of any geologic constraints.

This investigation consisted of the following tasks:

1. A review of published and unpublished geologic reports and data pertinent to the site;
2. Surface geologic reconnaissance by an Engineering Geologist;
3. Subsurface examination of the site utilizing the excavation and logging of four exploratory trenches; and
4. Preparation of this report.

### Proposed Development

The proposed development consists of the construction of one single-family residence on the property. It is assumed that the proposed house will be a detached single-family residence using wood-frame construction.

### Site Location and Description

The subject site is an irregularly shaped parcel located on the northeast side of Calaveras Ridge Drive, southeast of Country Club Drive, in Milpitas, California (see Figure 1). It is currently undeveloped.

The site presently contains no man-made structures. Total relief on the site is about 51 feet, ranging in elevation from 240 feet above sea level in the southern corner of the site to 291 feet in the northern corner. The topography at the property dips to the southwest, at a gradient of approximately 3 (horizontal):1 (vertical) in the northern half of the site and 16:1 in the southern half.

### **Previous Investigation**

The geologic model currently adopted by the City of Milpitas assumes that the Hayward Fault lies in the lower portion of the site. The City bases the location of the Hayward Fault on a 1978 Earth Systems report that we believe to be in error. We believe the Hayward Fault is upslope and off site, and that the fault features observed on the subject property were displaced from the actual fault location by landslide activity.

### **Geologic Setting**

The subject site is located in the Diablo Range foothills at the northeast edge of the Santa Clara Valley. The Diablo Range consists of Tertiary and Cretaceous rocks which are complexly folded and faulted about a northwesterly grain. The site vicinity has been mapped as being underlain predominantly by marine and valley sediments of Quaternary, Tertiary, and Cretaceous age (Dibblee, 1972 and 1973). These units were mapped by Dibblee trending northwest-southeast. Quaternary Santa Clara Formation valley sediments are shown to be underlying the property by Dibblee but Wentworth, et al (1999) have mapped Plio-Pleistocene Irvington Gravels in this area..

Two active faults are located in the vicinity of the site. The Hayward Fault is mapped generally less than 100 feet northeast of the property and the Calaveras Fault is about 3.5 miles from the property, also to the northeast. Both of these faults are included in a State of California Special Studies Zone delineated by the California Division of Mines and Geology (1981), as is the site. An additional fault on the Dibblee (1973) map, the Crosley, is plotted approximately 1,000 feet southwest of the property, trending northwest-southeast.

The site is located within a landslide hazard zone designated by the California Geological Survey (2004).

## Site Geology

The site geologic conditions were investigated by the following steps: a) surface geologic reconnaissance; and b) subsurface investigation utilizing the excavation and logging of four exploratory trenches.

### Surface Reconnaissance

A surface reconnaissance of the site and vicinity did not find bedrock exposures. No evidence of fault displacement, slope failure, soil creep and erosion zones, springs, and surface seepage areas were observed on or near the site.

### Subsurface Investigation

During our recent subsurface investigation of the pad area, we encountered shears similar to those described in the Earth Systems report, bearing N 25°W. We believe that our trench was located close to the Earth Systems trench, however, mapping discrepancies in the Earth Systems Report make precise location verification difficult. A subsequent parallel series of four trenches excavated approximately 40 feet to the south and logged by Robert Pollak, P.E., did not encounter the fault features seen in the first trench or described in the Earth Systems report.

Each trench encountered a thin layer of slope debris overlaying weathered sandstone. Maximum thickness of slope debris encountered was approximately 6' to 7' at the toe of the ascending slope. Trenches on the flat area, and approximately half way up the slope encountered slope debris approximately 2 to 3 feet thick.

The sandstone encountered was typically extremely weathered in the upper 4 to 5 feet and contained considerable clay. A caliche zone approximately 1 foot in thickness was found to underlay the extremely weathered material, separating it from reddish sandstone that is somewhat less weathered. The reddish sandstone was typically 4 to 5 feet in thickness and graded to tan sandstone, typically at depths from 10 to 12 feet. Trenches 1 and 2 in the flat area met refusal in the tan sandstone. The trenches at the base of the slope, and on the slope were not extended into the tan material.



We believe that this is strong evidence that the features described in the Earth Systems report are secondary and do not represent the location of the fault. Based on this model a set back of 50 feet east of the shears will place the setback given by earth systems 40 feet further east than that encountered in our recent trenches.

### **Seismic Considerations**

Seismic hazards can be classified into primary and secondary categories. Primary hazards include damage directly resulting from fault movement such as ruptures along the surface trace of a fault and seismic shaking from fault movement. Secondary hazards include damage from earthquake-induced phenomena such as earth flows, subsidence, and floods.

The hazard of surface fault trace rupture is significant near the northeastern edge of the property due to the location of the active Hayward Fault within approximately 100 feet of the site. Evidence of the presence of an active or potentially active fault in the lower portion of the site has not been fully determined at this time.

Ground shaking is a complex concept related to velocity, amplitude, and duration of earthquake vibrations. Damage from shaking is caused by the transmission of earthquake vibrations from the ground to the structure. The most destructive effects of an earthquake are usually seen where the ground is unstable and structures are poorly designed and constructed.

A significant hazard from shaking is anticipated since the site is located within the seismically active San Francisco Bay region and epicenter maps show continuing activity in the area. The U.S. Geological Survey (1999) has estimated the probability of a large earthquake in the region during the 2000 to 2030 period as 70%. The most probable source of significant seismic shaking in the Bay Area is the historically active San Andreas Fault, which is located approximately 28 kilometers southwest of the site. The U.S.G.S. (1999) estimated a 21% probability of a magnitude 6.7 or greater earthquake on this fault before the year 2030.

The known active faults that are in close proximity to the site are the Hayward and Calaveras Faults. The Hayward Fault is located less than 100 feet northeast of the site and The Calaveras Fault is about 3.5 miles to the northeast.

The California Division of Mines and Geology Seismic Hazard Zones map for the Milpitas Quadrangle, 2002, indicates that the site has a potential for earthquake-induced landslides. This classification typically requires a screening-level slope stability analysis of the affected areas of the site as prescribed by the Southern California Earthquake Center.

The secondary hazards of lurch cracking, liquefaction, and differential compaction are probably not significant because of the shallow depth to bedrock. The site location precludes the secondary hazards of seiche and tsunami.

## CONCLUSIONS AND RECOMMENDATIONS

1. The current practice of care in the field of engineering geology requires that sites near a major fault must be cleared of potential splays, or fault branches that may emanate from the primary fault. This usually entails exploratory trenching whereby a trench is excavated and logged by an engineering geologist to ascertain the presence or absence of fault features. In the case of the subject parcel, it appears that the landslide material is too thick to allow this approach.
2. Our proposed approach is to clear the proposed building pad will include additional exploration borings with equipment sufficient to penetrate through the slide material. If we encounter bedrock material, known to occur only to the west of the Hayward Fault, we can make a strong case for the fault location, but may not be able to rule out fault splays. The argument could be made however, that the landslide material will act as a block, and reduce the probability of a surface fracture. Based on that information, we may be able to propose a reduced setback from those features identified by Earth Systems (1978) which are currently assumed by the City of Milpitas to represent the Hayward Fault.
3. In addition to clearing the pad for possible fault splays, additional work will be required to assess the site slope stability in the event of a major seismic event. This will also require some additional field investigation including some deep borings, both in the area of the building pad, and on the adjacent ascending slope.
4. The site will probably be subjected to severe seismic shaking during the economic lifetime of the project. Hence, structural designs should employ current, acceptable design parameters. Earthquake design criteria have been provided in this report.

## LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. It should be noted that it is the responsibility of the owner or his representative to notify *TERRASEARCH, inc.*, in writing, a minimum of two working days before any clearing, grading, or foundation excavations can commence at the site.
2. The recommendations of this report are based upon the assumption that the subsurface conditions do not deviate from those disclosed in the trenches and from a reconnaissance of the site. Should any variations or undesirable conditions be encountered during the development of the site, *TERRASEARCH, inc.*, will provide supplemental recommendations as dictated by the field conditions.
3. This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information and recommendations contained herein are brought to the attention of the Architect and Engineer for the project and incorporated into the plans and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.
4. At the present date, the findings of this report are valid for the property investigated. With the passage of time, significant changes in the conditions of a property can occur due to natural processes or works of man on this or adjacent properties. In addition, legislation or the broadening of knowledge may result in changes in applicable standards. Changes outside of our control may render this report invalid, wholly or partially. Therefore, this report should not be considered valid after a period of two (2) years without our review, nor should it be used, or is it applicable, for any properties other than those investigated.
5. Notwithstanding, all the foregoing applicable codes must be adhered to at all times.

## REFERENCES CITED

California Division of Mines and Geology (CDMG), 1982, "Special Studies Zones, Milpitas Quadrangle": Revised Official Map Effective January 1, 1982.

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## **APPENDIX**

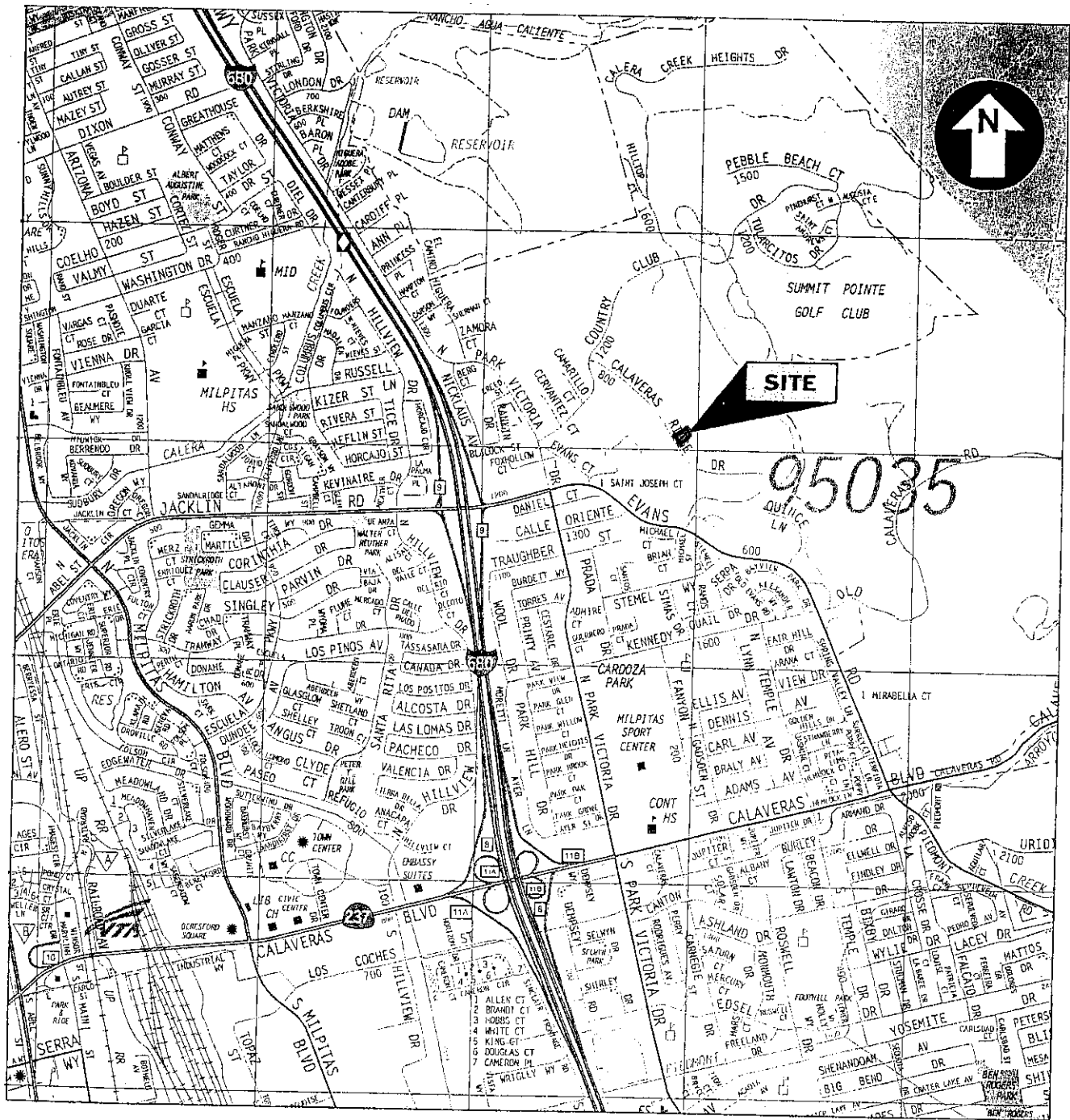
**Location Map - Figure 1**

**Regional Geology - Figure 2**

**Site Plan and Geologic Map – Figure 3**

**Logs of Trenches T-1, T-2 – Figure 4**

**Logs of Trenches T-3, T-4 – Figure 5**



0 .125 .25 .375 .5  
miles 1 in. = 1900 ft.

Project No. 9982.G

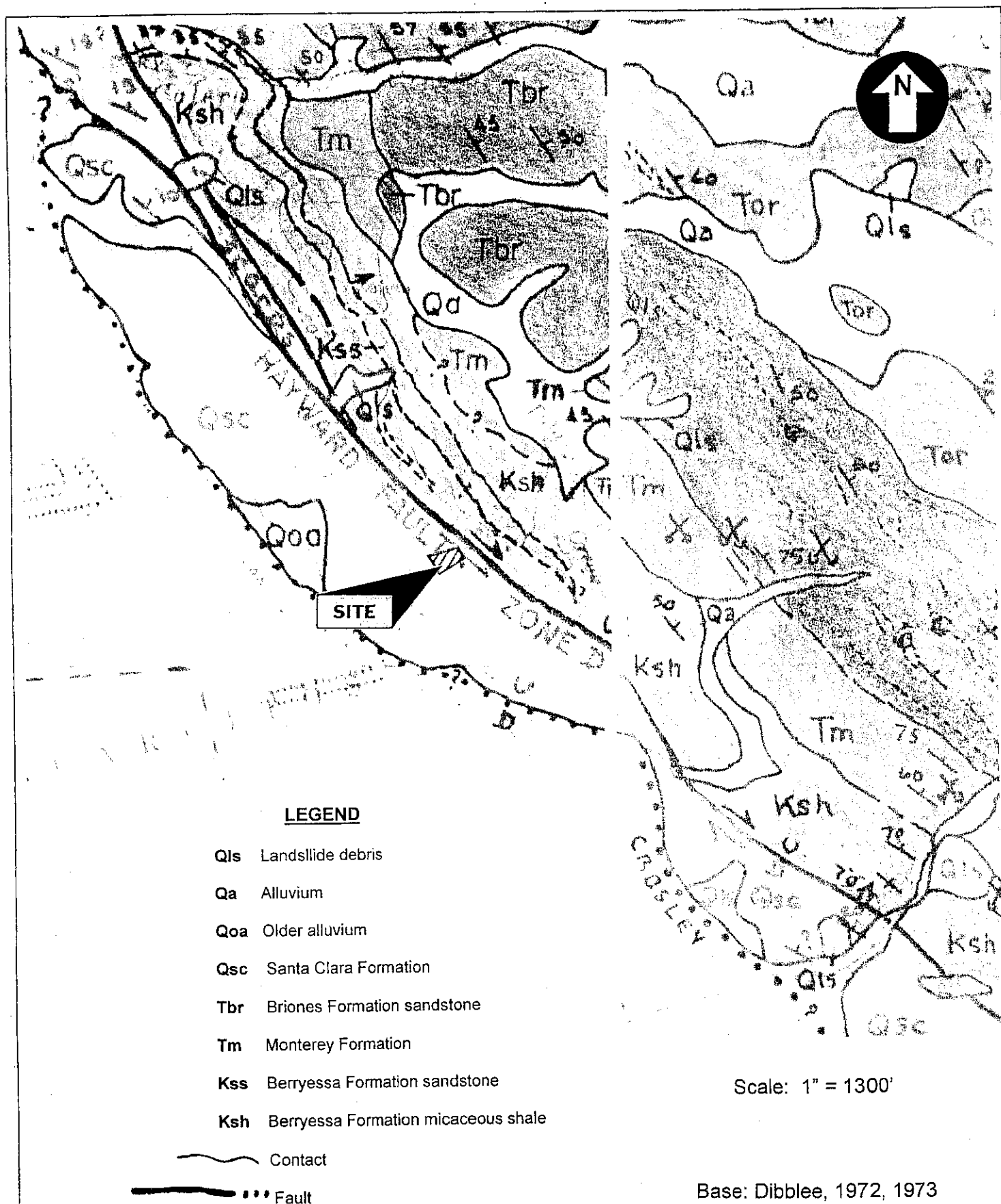
June 2005

### Location Map

Proposed Residence  
898 Calaveras Ridge Drive  
Milpitas, California

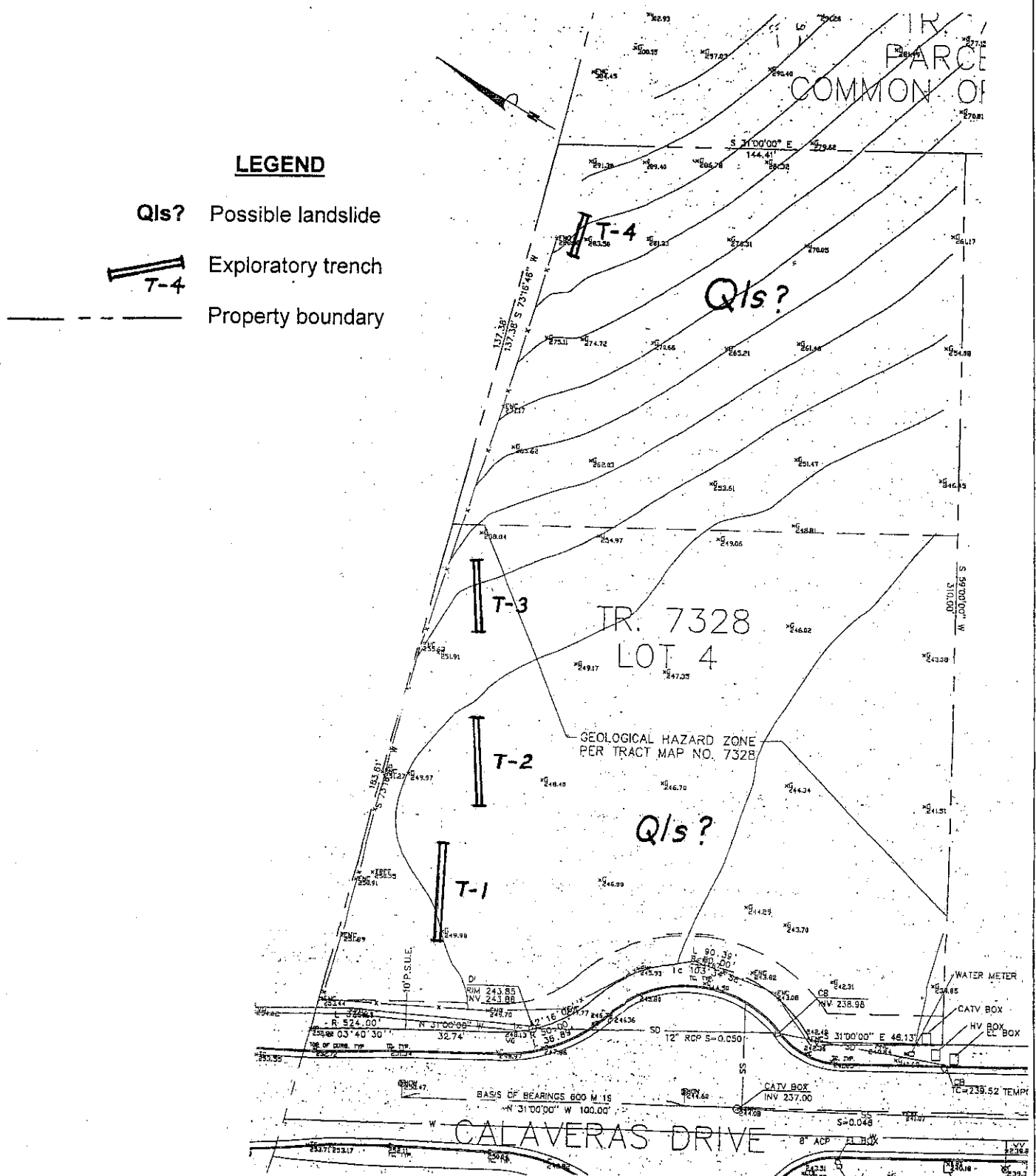
**TERRASEARCH, inc.**  
San Jose, California (408) 362-4920

FIGURE  
1



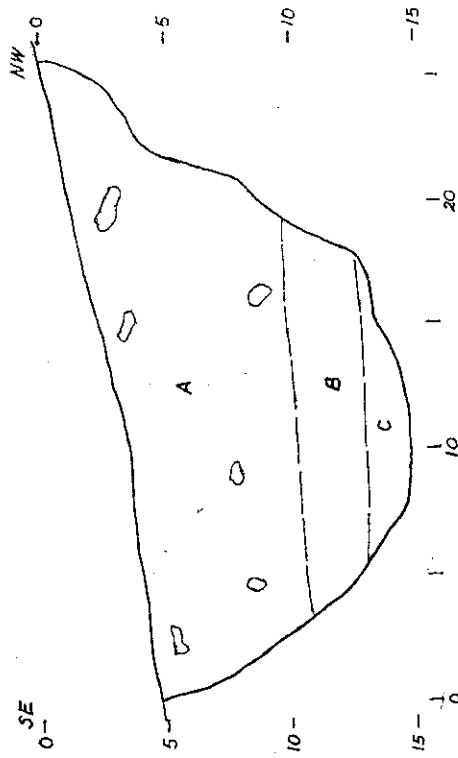
Project No. 9982.G	June 2005	<u><b>Regional Geology</b></u> Proposed Residence 898 Calaveras Ridge Drive Milpitas, California	FIGURE 2
<b><i>TERRASEARCH, inc.</i></b> San Jose, California (408) 362-4920			



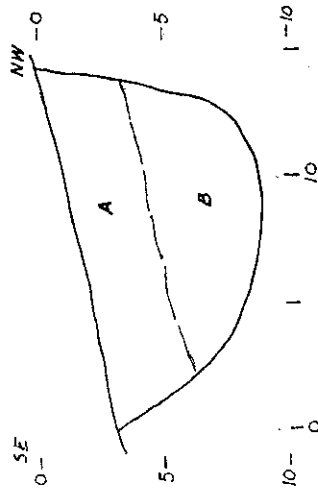


Project No. 9982.G	June 2005	<b><u>Site Plan &amp; Geologic Map</u></b>  Proposed Residence 898 Calaveras Ridge Drive Milpitas, California	FIGURE 3
<b><i>TERRASEARCH, inc.</i></b> San Jose, California (408) 362-4920			

TRENCH T-3  
N55°E



TRENCH T-4  
N55°E



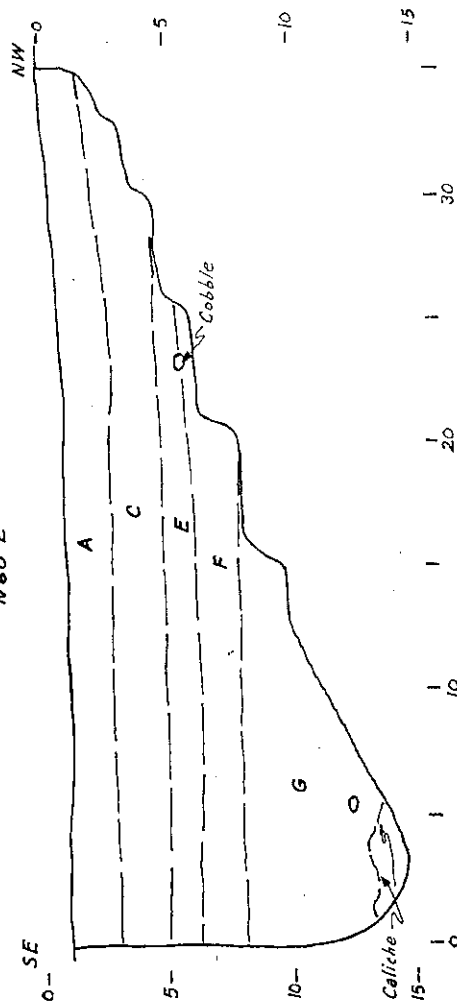
**LEGEND**

- A: Medium brown Sandy Clay with abundant cobbles (slope debris), blocky, loose, cobbles lay in varying orientations
- B: Reddish brown, slightly Clayey Sand (weathered sandstone)
- C: Medium brown, slightly Clayey Sand (weathered sandstone)

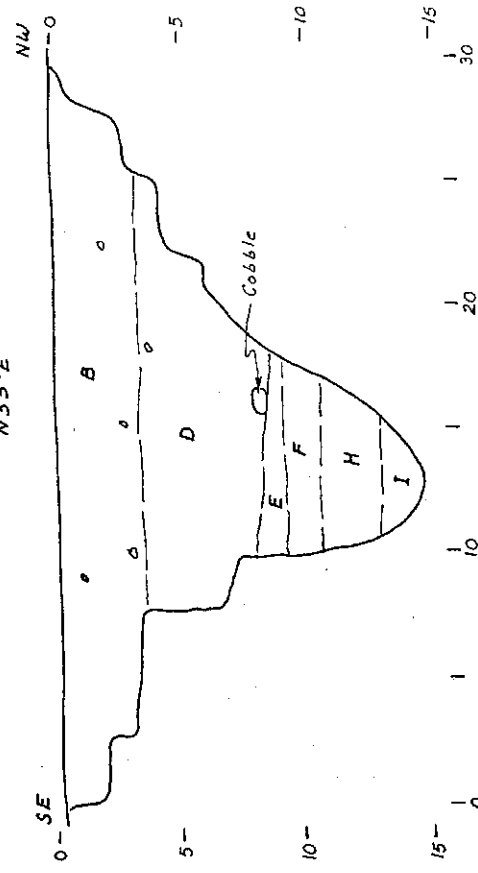
Project No. 9982.G	June 2005	<b>Logs of Trenches T-3, T-4</b> Proposed Residence 898 Calaveras Ridge Drive Milpitas, California
<b>TERRASEARCH, inc.</b> San Jose, California (408) 362-4920		

Scale: 1" = 5'

TRENCH T-1  
N60°E



TRENCH T-2  
N55°E



**LEGEND**

- A: Medium brown Sand and Gravel (dissected), blocky, loose
- B: Medium brown Sandy Clay with cobbles (slope debris), blocky, loose, cobbles lay in varying orientations
- C: Medium brown Clayey Sand/Sandy Clay, minor clay, (weathered sandstone), abundant root-hair voids and roots to 1" diameter, cemented, tight
- D: Medium brown Sandy Clay, abundant root-hair voids, tight, damp
- E: Caliche zone
- F: Medium brown, slightly Clayey Sand (weathered sandstone), very tight
- G: Grading to reddish brown Sandstone, then grading to light reddish brown
- H: Reddish brown, slightly Clayey Sand (weathered sandstone)
- I: Tan Sandstone, hard

Project No. 9982.G June 2005  
**TERRASEARCH, inc.**  
 San Jose, California (408) 362-4920

**Logs of Trenches T-1, T-2**  
 Proposed Residence  
 898 Calaveras Ridge Drive  
 Milpitas, California



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**FEB 07 2006**

## **FAULT INVESTIGATION**

**Proposed Residential Development  
898 Calaveras Ridge Drive  
Milpitas, California**

JOHN COYLE &amp;



ASSOCIATES, Inc.

February 3, 2006  
Project No. P043-05

TO: Civitaf Construction and Development  
70 East Main Street  
Los Gatos, California 95030

Attn: Mr. Edward Doau, President

SUBJECT: FAULT INVESTIGATION  
Proposed Residential Development  
898 Calaveras Ridge Drive  
Milpitas, California

Dear Mr. Doau:

The following report presents our finding, conclusions, and recommendations of our fault investigation at your vacant residential parcel located at 898 Calaveras Ridge Drive in Milpitas, California. This report provides geologic information pertinent to the development of the property and outlines geologic guidelines for subsequent stages of development.

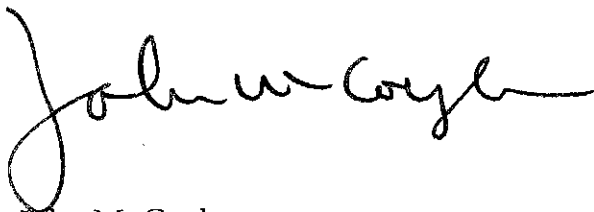
Based on our trenching, supplemented by that of earlier workers, we have defined a building envelope that is relatively free of geologic hazards related to ground-surface rupture. This building envelope observes 40-foot set backs along the sides of the parcel. However, based on our subsurface work and that of earlier workers, the front of the envelope can be moved 80 feet closer to Calaveras Ridge Drive than currently delineated by the Geological Hazard Zone while maintaining a 50-foot set back from the faults defined by earlier geologic studies. Because the southwest side of the building envelope is not exactly parallel to property line along Calaveras Ridge Drive, that side of the building envelope increases from 85 to 95 feet from the property line, the distance becoming greater to the northwest.

Civita Construction and Development  
898 Calaveras Ridge Drive, Milpitas

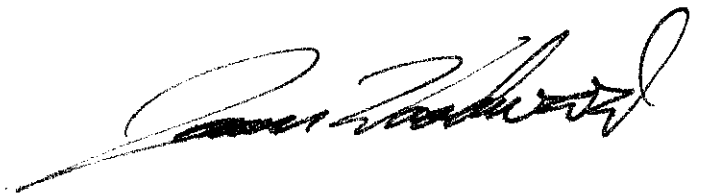
This report should be reviewed by the project architect, his structural engineer, the project geotechnical engineer, and the building contractor prior to the next stage of development.

If you have any questions, please call.

Respectfully submitted,  
JOHN COYLE & ASSOCIATES, INC

A handwritten signature in black ink, appearing to read "John M. Coyle". The signature is fluid and cursive, with the first letter of each word being capitalized and prominent.

John M. Coyle  
Chief Engineering Geologist  
CEG 1263

A handwritten signature in black ink, appearing to read "Jason S. Woodward". The signature is cursive and somewhat stylized, with a long horizontal stroke at the end.

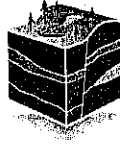
Jason S. Woodward  
Geologist

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JOHN COYLE &amp;



ASSOCIATES, Inc.

February 3, 2006  
Project No. P043-05

TO: Civita Construction and Development  
70 East Main Street  
Los Gatos, California 95030

Attn: Mr. Edward Doau, President

SUBJECT: **FAULT INVESTIGATION**  
Proposed Residential Development  
898 Calaveras Ridge Drive  
Milpitas, California

## INTRODUCTION

At your request we have completed a fault investigation for the proposed building site to be located on a vacant parcel. The parcel is addressed 898 Calaveras Ridge Drive in Milpitas, California. It is our understanding that you propose to construct on one- or two-story single-family residence on the subject parcel. The proposed residence will be serviced by the local sewer system.

Currently the approximate western half of the property is located within a Geological Hazard Zone (Plate 1). This zone is related to faults that were defined by Earth System Consultants (ESC) during the initial geologic investigations in 1978 and several in 1982 for the subdivision of which this parcel is a part. The entire parcel is located within an Alquist-Priolo Special Study zone for the then named Hayward fault. This fault has since been renamed the Warm Springs fault by Graymer and others in 1995.

## PURPOSE

The focus of our work was the potential for faulting within and immediately adjacent to the proposed building site. The purpose of our fault investigation was to explore the

subsurface conditions through the building site and immediate adjacent areas. Our intention was to determine if any active fault traces were present traversing the proposed building site, and, if possible, to "clear an area" that would allow an enlargement of the building envelopment toward Calaveras Ridge Road.

## SCOPE OF SERVICES

Our scope of services included the following tasks

- Review of pertinent geologic maps and reports in our files
- Review of pertinent geologic reports on file at the U.S. Geological Survey
- Review of pertinent geologic reports and maps on file at the City of Milpitas
- Review of pertinent vertical stereoscopic aerial photographs on file at the U.S. Geological Survey
- Site reconnaissance
- A meeting with representatives of the City of Milpitas
- Discussions with you
- Logging of a 206-foot long trench excavated to depths of about 11 feet
- Analysis of the resulting data
- Defining a new building envelope
- Preparation of this report and accompanying illustrations

## PREVIOUS GEOLOGIC STUDIES

The subject parcel is part of a large piece of property that originally extended southward from the subject property to Tularcitos Creek (Figure 1). This larger piece of property was the subject of a geologic study prepared by ESC in 1978 for the now existing subdivision of Calaveras Ridge Estates, (see references). Part of the scope of work for this 1978 study was fault trenching across areas where the then named Hayward fault was thought to be. Two trenches were excavated; Trench Tr-1 essentially across the corner of the future parcel in question and Trench Tr-2 about 830 feet to the southeast. Faulting was found in both trenches – three strands in Tr-1 and

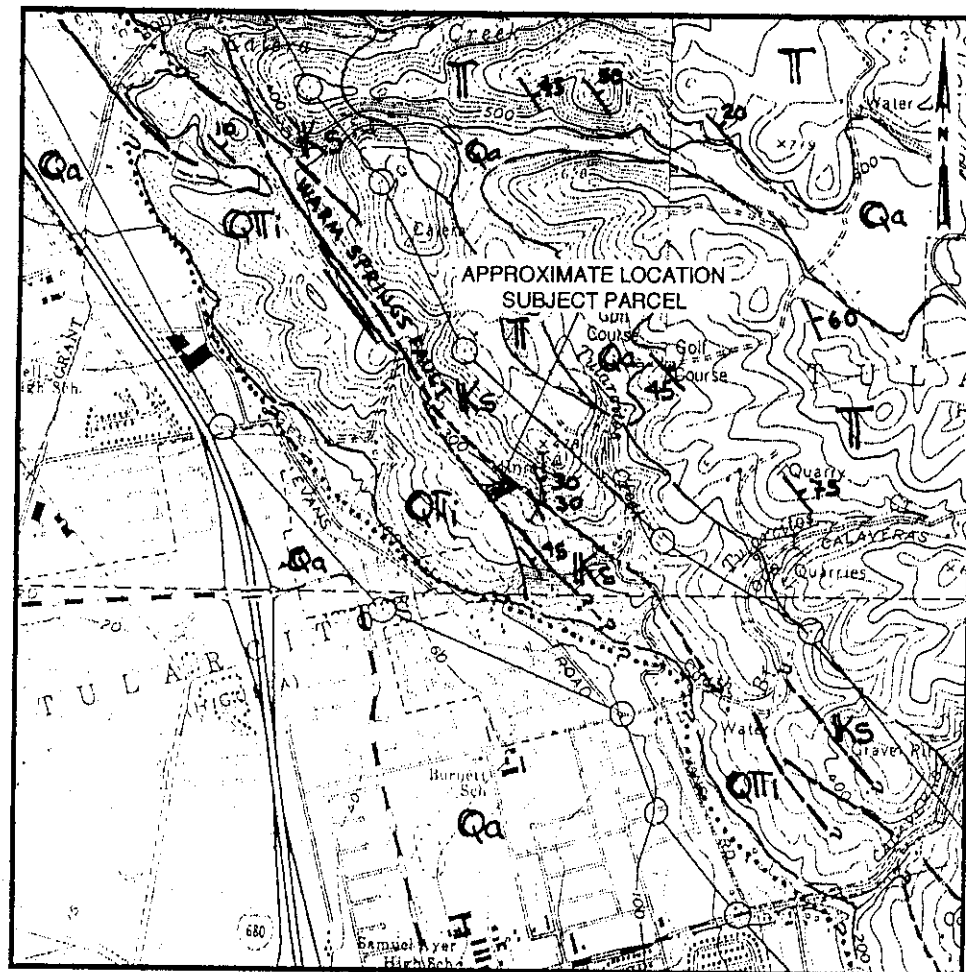

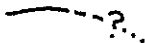





FIGURE 1 SIMPLIFIED REGIONAL GEOLOGIC INDEX MAP  
Proposed Residential Development, 898 Calaveras Ridge Road, Milpitas, California  
Scale 1"=2,000'

### EXPLANATION

EARTH MATERIALS	MAP SYMBOLS
<p>Qa Alluvium</p> <p>Qt Irvington Gravels</p> <p>Ks Berryessa Formation</p> <p>T Tertiary Rocks - Includes Monterey Formation, Briones Sandstone, and Contra Costa Group</p>	<p> Geologic contact</p> <p> Fault, dotted where concealed, queried where uncertain. Fault traces from Davis 1982a,b; Graymer and others, 1995; and ESC, 1978 and 1982a,b,c</p> <p> Strike and dip of beds</p> <p> Special Study Zone boundary</p> <p> Long 1982 ESC trench</p>

Modified from Davis, 1982a,b; Graymer and others, 1995; Dibblee, 1972; Dibblee, 1973; and ESC 1978 and 1982a,b,c

two in Tr-2. Together these fault exposures were used to define the location of the fault through the Calaveras Ridge Estates subdivision. Later, questions were raised about the potential for fault traces to exist further to the east along the hillside areas that underlie the eastern portion of the property. An additional trench about 740 feet long, was excavated down a southwest-trending ridge about 400 feet southeast (Figure 1) of the subject parcel (ESC, 1982a,b,c). Though faults and photo-lineations were mapped through the area spanned by the 750-foot trench, no faulting was reported. Based on the work by ESC a geologic hazards zone was defined through the subdivision and across the parcel. Geologic work in the southern area of the subdivision resulted in defining other fault traces in that part of the subdivision.

During the years the property was investigated by ESC a question raised as to whether the property (i.e., the subdivision) is located on a large deep-seated landslide. Additional geologic mapping and additional subsurface explorations were undertaken by ESC (1982a,b,c) to address this issue. ESC (1982) reported Berryessa Formation bedrock, with a strike and dip like that of the regional trend, and other bedrock materials were encountered about the lower slopes of the property, along Tularcitos Creek, and at a couple of locations elsewhere on the property. It was reported that the bedrock did not appear to be disturbed by landslide processes. The result of this work was subjected to peer-review by the late Mr. Ron Mearns (then San Jose City Geologist) and found acceptable (Mearns, 1983). During this time soil and foundation studies were also conducted by ESC (1981).

Later work by Terrasearch in 2005 (see Terrasearch, 2005a, b in references) consisted of four to five separate trenches up to about 35 feet long. Some evidence for faulting was found "on-line" with ESC findings; however, Terrasearch believed the results were somewhat equivocal. Also their trenching program did not provide a continuous log through the geologic hazard zone and on up slope.

As noted above when the initial studies were done for the property, and the specific parcel in question, the fault that traversed the property was known as the Hayward fault. At that time the Hayward fault was thought to continue southeastward from

Alameda County into Santa Clara County and to be located on the hillside area to the northeast of the subject parcel (Davis 1982a,b). Geologic studies published in 1995 by Graymer and others and indicate that the Hayward fault is now thought to terminate about one-quarter mile north of the Alameda – Santa Clara County line. The fault that traverses the subdivision is now known as the Warm Springs fault and is mapped to occupy essentially the same location as the fault previously known as the Hayward fault. This location is upslope about 50 to 100 feet northeast of the subject parcel. This fault was apparently not encountered in the 1982 ESC trench excavated down the ridge about 400 feet east of the parcel in question. This suggests that the trace of the Warm Springs fault may be mapped incorrectly by Graymer and others (1995) and is not east of the subject parcel, and that the faults encountered by ESC in 1978 probably mark the location of the Warm Springs fault through the Calaveras Ridge Estates subdivision.

## ACCOMPANYING ILLUSTRATIONS

Figure 1      Regional Geologic Index Map  
Plate 1       Site Map and Geologic Log Trench JCA T-1

## SITE CONDITIONS

The subject parcel is roughly trapezoidal in shape (Plate 1). The northeastern two-thirds of the property is characterized by moderately-steep to steep (18 degrees) southwest-facing hillside topography (Plate 1). The remaining portion of the parcel is relatively flat and is part of a broad topographic bench that extends for over 1,000 feet along the hillside area.

The geology, or aspects of the geology, of the subdivision and surrounding area has been mapped by a variety of workers over the last 50+ years (Crittenden, 1951; Nilsen, 1972; Dibblee, 1972; Dibblee, 1973; ESC, 1978 and 1982a,b,c; Davis, 1982a,b; Graymer and others, 1995; and Terrasearch 2005a, b). The sum of this geologic mapping and subsurface investigations essentially indicate that the parcel in question is underlain by

sandstone and shale bedrock of the Berryessa Formation which is in turn overlain by a veneer of soil and colluvium of variable thickness. In the area of the subdivision the bedrock exhibits a general northwest strike and a moderately steep dip to the northeast. Fault trenching studies by ESA (1978) have established the presence of faults along the southwest margin of the parcel in question and this was later supported, though reportedly not conclusively, by work by Terrasearch (2005a).

## **CURRENT TRENCHING STUDY**

Our trench was positioned to overlap with the northeast end of ESC Trench Tr-1 and the southwest end of the 730-foot long trench 400 feet to the south (Figure 1), and to span the area explored by the three eastern discontinuous trenches excavated by Terrasearch (2005b). In addition, because the entire parcel is located in the Alquist-Priolo Special Study Zone we extended our trench about 35 to 40 feet past the northeast side of the proposed building envelope to clear the entire proposed envelope. The location of our trench is shown on Plate 1 and our trench log is also presented on Plate 1.

Essentially our trench encountered a sequence of interfingering colluvial deposits. Locally bedrock of the Berryessa Formation was observed along the bottom of the trench. No evidence for faulting was observed. Please see the trench log on Plate 1 for descriptions of the earth materials encountered in our trench.

## **CONCLUSIONS**

Our conclusions with regards to a building site envelope are presented below. A brief discussion with respect to ground rupture hazards follows that.

### **Building Site Envelope**

As noted above our trench (which overlaps ESC Tr-1) combined with Tr-1 "shadows" almost the entire length of the subject property (Plate 1). Save for the faulting observed

by ESC in Trench Tr-1 (Plate 1) no other evidence for faulting was observed in the northeastern 65 feet of ESC Trench Tr-1 and through our trench. This effectively clears an area through the "geologic hazard zone" and further northeast, almost across the entire length of the subject parcel.

Based on the results of ESC Trench Tr-1 and our trenching we have defined a building envelope that is setback 50 feet from the northeastern-most fault trace identified by ESC in their Trench Tr-1. Distances of the front and sides of the building envelope from the front and side property lines are noted in the cover letter.

### **Ground Rupture Hazards**

Analysis of displacements along faults after historic earthquakes (U.S. Geological Survey Staff, 1971; F. Beach Leighton and Associates, 1975; and Cotton and others, 1982) indicates that displacements tend to reoccur along essentially the same fault or fault zone that was created by historic events, at least when considering relatively short periods of geologic time. Therefore, if movement along the fault at the front of the parcel were to occur in during a major earthquake centered on that fault, it is logical to conclude that ground rupture would most likely occur along or in the immediate vicinity of the fault trace, as it is mapped to cross the Parcel (Plate 1).

This should not be construed as a guarantee that offsets cannot occur elsewhere than along the most recently active traces. Over the large span of geologic time that a fault might be active, the location of ground surface rupture can migrate laterally over a wide area, hence the width of some fault zones, and the presence of multiple faults in a zone such as the faults along the front of the parcel. However, during the relatively short life-time of any residential structure, it is not likely that a new fault trace will be created; it is much more likely that any displacement that might occur in the immediate future will be confined to those fault traces where recent past displacement has occurred.

Although it is thought that the zone of potential faulting will be confined to the area shown on Plate 1, it is considered wise not to locate residential structures too close to

these zones. Accordingly a setback from this zone of faulting is recommended. There is no minimum setback requirement; however, an accepted standard is 50 feet. The southwest side of the Building Envelope is setback 50 feet from the fault trace defined by ESC in 1978 and 1982. All residential construction should be confined to area within the prescribed building envelope.

It must be noted that construction inside the building envelope does not guarantee immunity from ground disturbance beneath a structure during a major earthquake centered on the fault. There will always be a certain indefinable level of risk; construction within the envelope only serves to decrease the level of risk.

Research of the historical record by Thatcher and Lisowski (1987) shows that during the 1906 earthquake, movement on the San Andreas fault on the San Francisco Peninsula was locally accompanied by a zone of ground disturbance ranging from 60 to 2000 feet wide, with up to 30 percent of the total slip occurring across this zone. However, Lazarte and others (1994) report ground displacements up to about 6 inches were observed in areas near the main fault break of the 1992 Landers Earthquake. Up to several inches of displacement and ground deformation were reported along the San Fernando fault following the 1971 San Fernando Valley Earthquake of 1971 (U. S. Geological Survey Staff, 1971). Thus, there exists the possibility that in the case of a residence located very close to a major fault, ground offset, cracking, warping, or other disturbances, up to about at least several inches could occur beneath the proposed residence. At present, it is difficult, if not impossible, to determine precisely where and how much distress could occur. However, the structural engineer should take into account this potential for disturbance during foundation design.

## RECOMMENDATIONS

The following recommendations shall be incorporated into subsequent stages of development:



1. **Building Envelope** – All residential construction shall be confined to the building envelope shown on Plate 1 and described in the cover letter. No residential construction shall be allowed closer to Calaveras Ridge Drive than 50 feet from the eastern most fault trace as shown on Plate 1.
2. **Seismic Design Criteria** – Design and construction of the proposed residence shall take into account the seismic setting as discussed in the 2005b Terrasearch report. Residential Structure Design should take into account the risk of damage due to violent ground shaking. This risk can be significantly mitigated with proper structural design, sufficient lateral bracing, an adequate foundation system, and good construction techniques. At a minimum, the appropriate sections of the most current issue (at the time of construction) of the UBC or California Seismic Code should be utilized. In addition, the potential for several inches of displacement or ground cracking in response to movement on nearby faults should also be taken into account.
3. **Trench Back Fill** – The trench excavated for this study was excavated along the northwest margin of the proposed building site. It was loosely back filled. Foundation design and construction should take into account that loose earth materials are present in this area of the building envelope and either over excavate and recompact these materials or design the foundations in this area to allow for the presence of these weaker earth materials.
4. **Technical Plan Review** – We shall review the final site plan to determine that the location of the proposed residential structure is within the Building Envelope as shown on Plate 1.

## INVESTIGATION LIMITATIONS

Our services consist of professional opinions and recommendations made in accordance with generally accepted engineering geologic and geotechnical engineering principles and practices. No warranty, express or implied, or merchantability or fitness, is made

or intended in connection with our work, by the proposal for consulting or other services, or by the furnishing of oral or written reports or findings. If the client desires assurances against project failures, he agrees to obtain appropriate insurance through his own insurance broker.

The analysis and recommendations submitted in this report are based on our site reconnaissance, the information derived from natural and artificial exposures, and earlier geologic studies. Unanticipated field conditions are commonly encountered during construction and cannot be fully determined from existing exposures and may require that additional expenditures be made during construction to obtain a properly constructed project. Some contingency fund is recommended to accommodate these possible extra costs.

The plan review called for in the RECOMMENDATIONS section above is a separate task from the preparation of this report and is not a part of the contract under which this report was prepared. Plan review and other services performed after delivery of this report will be performed on a time-and-materials basis.

This report is issued with the understanding that it is the responsibility of the owner or his representatives to insure that the information and recommendations contained herein are called to the attention of the geotechnical engineer, project architect, structural engineer, and incorporated into the plans, and that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

This report has been written in order to evaluate the potential for a fault to traverse the proposed building envelope of the subject parcel, as shown on Plate 1 and discussed in the INTRODUCTION and PURPOSE sections of this report. In the event that any new information pertaining to changes in plans is formulated, our conclusions and recommendations shall not be considered valid unless the changes are reviewed and the conclusions in this report modified or verified in writing by a representative of John Coyle & Associates, Inc.

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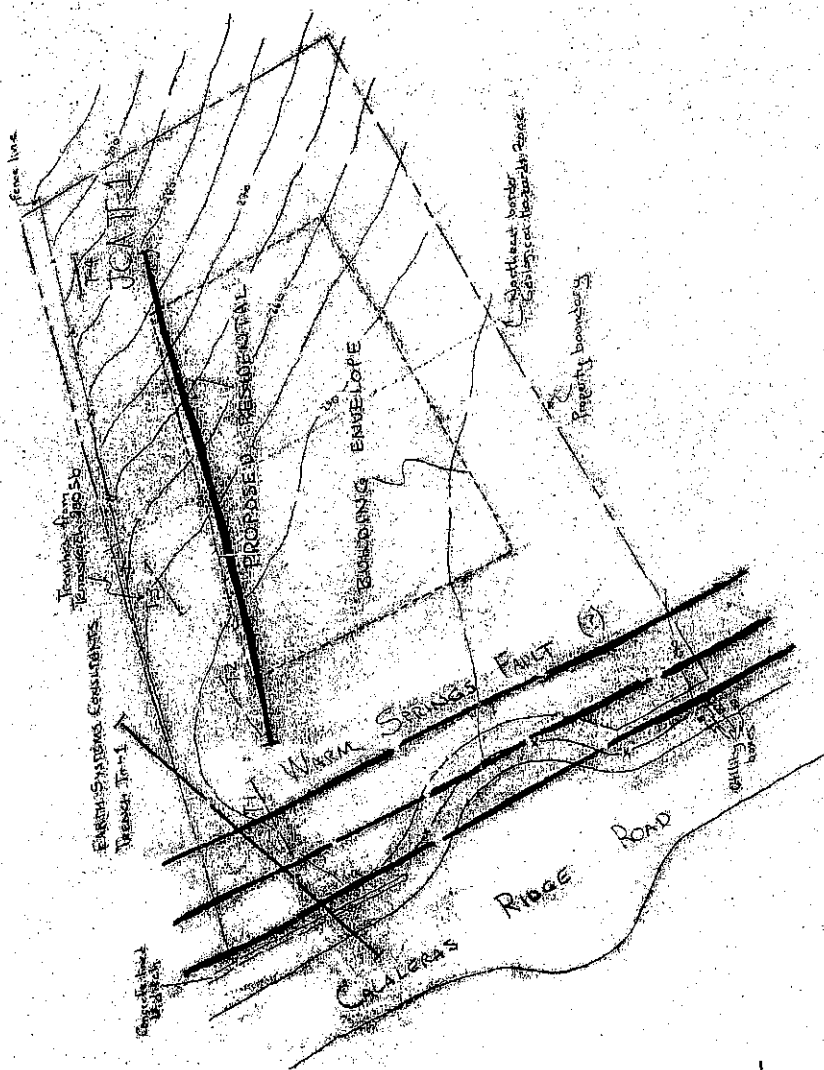
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#### **AERIAL PHOTOGRAPHY REVIEWED**

(On file at the U. S. Geological Survey)

7/26/39	BUT 281 - 24, 25	B/W	1:24,00
9/26/48	GS-HR 2-77, 78, 79	B/W	1:23,600
8/15/60	GS-VALY 2-33, 34	B/W	1:30,000
5/16/65	SCL 11-179, 180	B/W	1:12,000
5/20/66	BUT 56G-24, 25	B/W	1:20,000
10/14/74	13 - 62, 63	B/W	1:20,000
2/20/1981	GS-VEZR 2-85, 86	B/W	1:24,000



Site geology characterised by colluvium overlying sandstones and shales, bedrock of the Berrigerra Formation

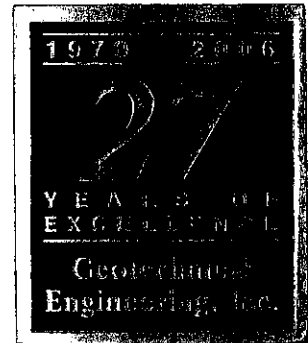
Location of 2500 Meters T-1 from  
South Sydney Airfields, 1988, and  
Reaches T-1 through T-4 from Keesler  
2500b



CONSULTANTS IN GEOLOGIC & SOIL ENGINEERING

SUITE B-1 38750 PASEO PADRE PARKWAY FREMONT, CA 94536 TELEPHONE 800-791-SOIL 510-791-0100 FAX 510-791-1705

March 24, 2006  
Job No. 41362 B  
Via fax: 408-586-3285



City of Milpitas  
Planning Department  
455 E. Calaveras Boulevard  
Milpitas, CA 95035-5479

Dear Kim Duncan, Project Planner:

RE: Geotechnical Peer Review  
Planned Single Family Residence,  
898 Calaveras Ridge Drive,  
Milpitas, California

### Introduction

In accordance with your request and authorization of March 13, 2006, Geotechnical Engineering, Inc. (GEI) has reviewed fault investigation Report prepared by **John Coyle & Associates (JCA)** dated February 3, 2006, a preliminary geologic assessment dated June 8, 2005 by Terrasearch, Inc. and a soil engineering and geologic report dated November 1981 by Earth Systems Consultant. A new single-family residence will be located at 898 Calaveras Ridge Drive, Milpitas, California (JCA date Feb. 3, 2006).

We offer the following comments:

### Site Investigation

The JCA site investigation and other consultants included review of site location, field reconnaissance, digging, logging and mapping a single exploratory trench at the location of planned residence. The geologic, landslide, and special studies zone maps of the area by Dibblee, City of Milpitas, USGS, CDMG, Nilsen, Earth Systems Consultants, and Terrasearch were reviewed, and earthquake probabilities were investigated. The property is located within an **Alquist-Priolo Special Studies Zone** of the active Warm Springs fault. Based upon maps by CDMG and City of Milpitas, the landslide potential appears to be relatively moderate.

**RECEIVED**

MAR 27 2006

ATTACHMENT E

CITY OF MILPITAS

Kim Duncan  
March 24, 2006  
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### Background Data

As was stated in the JCA report and based upon State of California Department of Mines & Geology (CDMG), this area is located within the active Warm Springs fault zone; the main trace of the Warm Springs fault appears to be located just west of the planned residence. The Working Group on California Probabilities (1999) has published an estimated 32 percent probability of an earthquake on the Hayward/Rodgers Creek fault zone within the next 30 years.

### Planned Construction

The new residence will be constructed east of Calaveras Ridge Drive. The planned wood frame house will have approximate plan dimensions of 40 by 90 feet. The property in the vicinity of the planned residence is gently to moderately sloping; the ground surface elevation ranges from 245 to 290 feet. The dimensions of the property are about 175 by 300 feet.

### Geotechnical Characteristics

Regional geologic mapping by Dibblee & Terrasearch, indicates that the project site is underlain by inactive slide debris consisting of sandstone and shale of the Berryessa formation. Based upon the quadrangle scale topographic and geologic maps, the property is located on the middle flanks of the hillside (approximate elevation 270 feet); the terrain generally slopes downward towards the southwest. The site is currently vacant.

- Below from 0 to 2 feet, dark colored expansive clay strata was encountered.
- From 0 to 11 feet of clayey silt is underlain by siltstone and sandstone bedrock.
- Free ground water was not encountered in the test trench.

The JCA recommended a 50-foot set back from adjacent existing faults, together with appropriate set backs from the north and south property lines.



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### Geotechnical Conclusions

1. Considering the absence of faulting in a continuous trench located at the north edge of the building envelope; an extending about 35 feet beyond the building envelope, GEI concurs with recommendations to locate the new home site within 50 feet of the adjacent existing faults.
2. GEI concurs with:
  - a. The seismic design criteria should take into account the seismic setting described in Terrasearch report.
  - b. To reduce differential settlements, the existing trench backfill in the vicinity of the new house should be subexcavated and properly compacted.

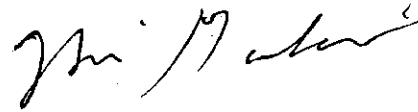
### Additional Recommendations

1. It is our professional opinion that because of the proximity of the planned residence to the nearby active faults and nearby steep slopes GEI recommends that a detailed site specific soil investigation be performed to address the seismic slope stability issues as well as providing recommendations for foundation design and other geotechnically related parameters.

Kim Duncan  
March 24, 2006  
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We trust that this letter report would provide the information that you require at this time. Should you have any questions or require additional information, please do not hesitate to call us.

Very truly yours,  
Geotechnical Engineering, Inc.



Taghi Manbeian, Ph.D., P.E.  
President



Alan S. Boris, GE 155, CE 15796  
Geotechnical Engineer

cc: City of Milpitas  
Attn: Mr. Keyvan Iran-Nejad  
Chief Building Official

